Volume XXII
Number 1
January, 1946

SOAP and SANITARY CHEMICALS

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Published Monthly By
MAC NAIR-DORLAND COMPANY
254 West 31st, New York, N. Y.

Subscription rate, $3.00 per year. Foreign, including Canadian, $4.00. Copy closing dates—22nd of month preceding month of issue for reading matter and 10th of month preceding month of issue for display advertising. Reentered as second-class matter, Feb. 9, 1938, at Post Office, New York, under act of Mar. 3, 1879. Mail circulation Dec. 1945. 4785 copies. Total circulation 5000.

AS THE EDITOR SEES IT

SOAPERS face an uncertain raw material outlook in 1946. For the first half of the year, the predictions of oil and fat producers, government statisticians, and most soapers indicate a continuation of the present fat shortage. Improvement during the second half of the year with a return to something akin to normal supplies early in 1947 is the hope of the experts. In the case of alkalies and other chemical raw materials, continuation of an improved supply position is expected, but the entire raw material situation is so overshadowed by the current oil and fat shortage that other improvement has not aided too greatly in dispersing the gloom.

The removal of rationing on edible fats and oils late last year was not an indication that the supply situation was or is better. Edible oil rationing termination was merely the result of a mechanical entanglement with the end of meat rationing. And its termination does not reflect the likelihood of an early end of soap fat quotas. The thinking of Department of Agriculture officials is obviously not along this line at the present time. In fact, a rumor of a reduction in soap fat quotas was heard in Washington shortly after the turn of the year. The opinion has also been expressed that had not heavy ex-quota demand for soaps for war purposes ended when it did, a cut in soap fat quotas would now be in effect.

In the soap industry, opinion regarding the advisability of immediate removal of soap fat quotas is divided. At a recent meeting of soap manufacturers in New York, agitation for prompt freeing of all soap fats from quotas was in evidence. But, majority sentiment indicated a belief that quota controls should be continued.

Until another six months or more rolls around, soap fats are likely to continue in short supply. That later in 1946, increased imports of soap oils, especially coconut oil and copra, may help to alleviate the situation is a hope. Even though the 1946 production of whale oil may be large, most of this will probably go into edible channels, little to the soap kettle. And unless the situation changes suddenly and unexpectedly, this appears to the the none-too-encouraging near-by picture as 1946 soap production gets under way.

IN ACTUAL tonnage, how much in the way of oils and fats will be available for the soap kettle in 1946? According to a recent "confidential" report compiled by the Department of Agriculture, about 1,600,000,000 pounds of fats will be available for soap manufacture this year. The total of all fats suitable for soap manufacture,—but a certain tonnage of these must go to other industrial uses,—approximates 2,250,000,000 pounds. This figure includes some 1,800,000,000 pounds of inedible tallow and grease,—but strangely enough does not include a single pound of anticipated imported oils or fats. Where in 1945, imports of soap oils were about 380,000,000 pounds, the corresponding space in 1946 on the report is left blank.

Naturally, this is puzzling. Do the USDA officials really believe that no coconut oil or copra will come in during 1946? In any case, if an amount of coconut oil equal to that imported in 1945 were added to the 1,600,000,000 pounds given above, it would total close to two billion pounds of soap fats,—not too gloomy a picture. Of course, even if the two billion pound figure were to become fact, it represents an over-all figure for the year. Most of the material will not

become available until the second half of the year, which would not alleviate the present shortage or necessarily change the picture for the first quarter.

Just in passing, it is interesting to note that this report was marked "confidential," but nevertheless found its way into the hands of some soapers and others outside of the Department of Agriculture. Why "confidential,"—and for whose use? Why not broadcast it to every soaper, renderer, and the like as soon as possible? The war is over,—but is this oil and fat gumshoe business going to continue forever? Is it any wonder that many small soapers not in on the "confidential" stuff get the idea they are being jobbed?

THE small soaper had his "day in court" on January 10. About a hundred smaller soap manufacturers from all parts of the country gathered in New York to discuss their problems,—and to hear charges leveled by a few that they were being discriminated against in the administration of the present soap fat quota system,—and to hear a demand that quotas be ended now. At the meeting were representatives of the Department of Agriculture who administer soap fat quotas, a representative of OPA, a fat and oil expert of the Department of Commerce, and an investigator for the Small Business Committee of the House of Representatives.

After several hours of rather heated argument, it was quite apparent that those small soapers who led the attack had failed to make a convincing case, had failed to substantiate their charges. Outside of proof that black markets in soap do exist in some parts of the country, we neither saw nor heard any evidence worthy of consideration. The meeting, somewhat unnecessarily wordy and long winded, was quite obviously a free and open hearing. If there were factual evidence, it could and should have been presented. The plaintiffs may have had a case, but as we saw it, they failed to establish it.

AS 1946 makes its bow into a world of chaos,—and labor issues high wage ultimatums to one large industry after another, we sit with fingers crossed wondering if and when a wave of labor difficulties might hit the soap industry. Sorely beset with raw material problems which appear likely to continue throughout the year, labor troubles at this time would make most soapers feel like locking up the old plant and throwing the key in the river.

Although we feel that labor in American soap plants is extremely well treated,—history of soap industry labor relations is of the model variety,—excessive wage demands elsewhere may before long have their repercussions in the soap industry. Upon the success or failure of the thirty per cent demand in the General Motors controversy will hinge many subsequent activities of organized labor. In that instance, we feel that the union overreached itself while slightly intoxicated with power, and that now it is beginning to sober up to the realization that its demands are rather excessive.

Apparently labor believes that it is now or never, that now is the time to get what it wants in the age-old struggle. There is no gainsaying the fact that whether or not labor is at the moment moving actively in the direction of higher wages,—there is strong thinking everywhere in this direction. A workman who did not think thus under present conditions would not be human. But it is something also which employers must think about,—and in advance,—for they are the ones who must meet the higher payrolls if and when they may come.

In the soap industry, there may be no labor trouble, whatsoever. A past history of a minimum of labor trouble is a good omen. A high degree of productivity with a comparatively small working staff is inherent in the process of soap making,—which makes soapers less vulnerable to labor trouble. But nevertheless, a strike can shut down a soap plant just as quickly as a steel plant. The subject is worth a lot of deep thought.

Spray Process for Soaps

BY
Alan Porter Lee

IN years past the production of washing powders and granulated soaps by spray tower processing has been almost entirely in the hands of the larger manufacturing companies. This has been due to a considerable extent to the requirement of relatively heavy capital investment in plants for production of either the crystallized type of so-called washing powder or the more expensive type of granulated dried soap which has become so popular for household laundry use since the general adoption of the home clothes-washing machine.

Other considerations than that of large capital investment, however, have also been influential deterrent factors in preventing the general adoption of spray processes for production of washing powders or granulated soaps by the smaller soapers. First, the problem of successful engineering design. While the installation of a small tower for spray-process production of washing powders appears at first glance to require only very simple construction ability, it is a fact that the calculations involved in determining the dimensions of the tower for a given production, the pressure at the spray nozzles, the amount, point of application and velocity of the cooling airstream, the time required for crystallization, the type of conveying apparatus for product removal and various other elements of design, call for the application of the principles of sound engineering design practice. A number of small soap manufacturers, particularly manufacturers of washing powders by the floor cooling and grinding or the refrigerated cooling-cylinder and grinding methods, have attempted to install spray-cooling towers without the benefit of engineering advice, with the result in several instances that expensive impractical monuments are to be seen standing beside plants in which the old laborious and expensive floor-cooling and grinding procedure is still practiced.

Second, the factor of marketing has restrained many small soapmakers from adopting spray processes, because of fear of their inability to market an increased output of washing powder or of granulated soaps. The experience of a few small producers who have installed spray processes runs in exactly opposite channels. One manufacturer of washing powders has reported a marked increase in demand for his products after attaining the quality improvements which result from the spray process, including uniformity of color, texture and particle size, increased solubility and decreased dusting. Another small manufacturer of a miscellaneous line of household and industrial soaps has developed a very substantial business in granulated soaps as a reward for his willingness to pioneer in the application of engineering design to the construction of a spray process drying tower.

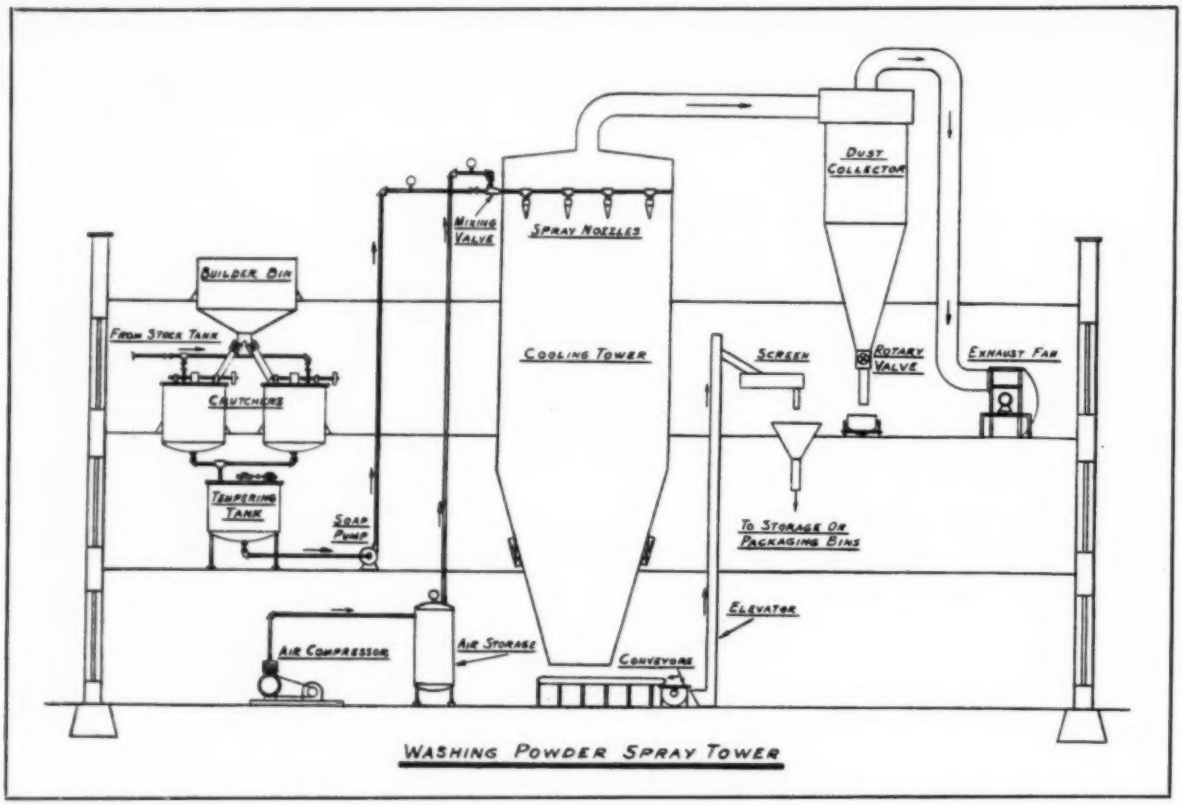
Third, in the recent past many small producers have hesitated to consider the installation of spray process towers, particularly those designed for the drying of granulated soap, because of the existence of a series of patents containing claims represented as basic under some of the most desirable and successful features of such spray drying processes. The entire industry has followed with intense interest a protracted litigation of these patents and it may be said that there existed among many small soapers a community feeling of gratitude over being free of involvement in these law-suits. Now that some of the patents have expired, their content is open to public use.

Washing Powder Spray Process

"WASHING powders consist of mixtures of soap, sodium carbonate (Na_2CO_3) and water, sometimes containing also small amounts of other mild alkalies, such as trisodium phosphate or sodium metaphosphate. The theory underlying production of a suitable solid product containing a fairly high percentage of water is based upon crystallization of the sodium carbonate, which occurs with one of two percentages of water of crystallization— $Na_2CO_3 10N_2O$, sal soda or $Na_2CO_3 7H_2O$. In the manufacture of washing powders, the soap content may vary from 10% to 35% or 40%. A suitable amount of soda ash, (Na_2CO_3) is dissolved in sufficient water to give the desired crystalline product on cooling and this solution is blended with the proper amount of soap in a crutcher. The mixture is then cooled, either by spreading it thinly on a concrete or wooden floor, by flowing it over a refrigerated surface, or by spraying it through nozzles at the top of a tower.

Cooling causes crystallization of the soda ash in the form of $Na_2CO_3 10H_2O$ or of $Na_2CO_3 7H_2O$ or as a mixture of the two crystalline forms. In any case the crystals formed will be thoroughly mixed with the soap present. Regardless of the cooling method employed, the crystallization of the inorganic salt will be accompanied by release of latent heat of crystallization, which must be removed or dissipated if the mixture of crystals and soap is to be brought to a dry powdery form.

In this short article space will not be devoted to discussion of procedures employed in methods other



WASHING POWDER SPRAY TOWER

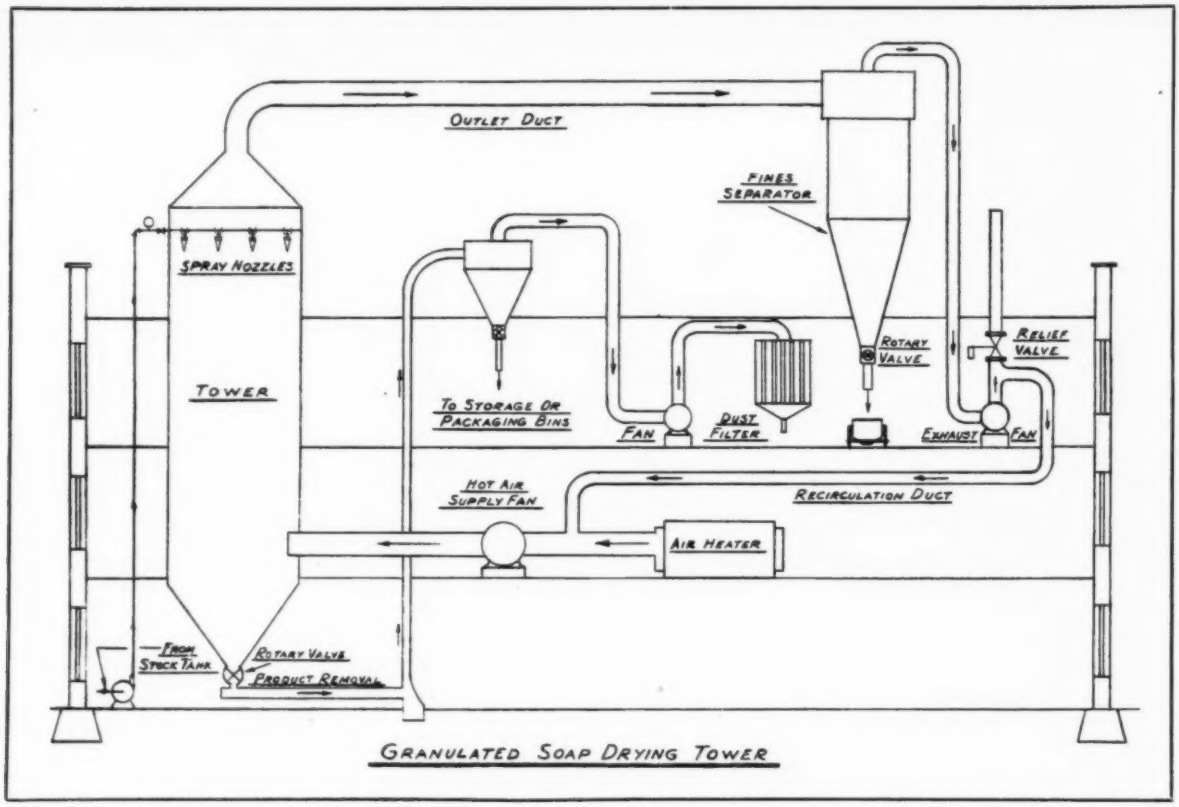
than the spray process for production of washing powders, but a general outline of the major considerations in design and operation of a spray process will be given. Practical operation of several such spray processes has shown that one of the most important factors is uniformity of formula and adherence thereto. Once a spray-process tower is placed "on stream" (to borrow a term used more frequently in the distillation industries) successful operation is dependent upon maintaining strict adherence to formula in each crutching as well as upon close regulation of temperatures and pressures throughout the equipment.

From the crutchers the mixture of soap, sodium carbonate and water is transferred to a supply tank for spray nozzles, where the temperature is maintained uniformly within 0.5° plus or minus while the mixture is pumped further to the spray nozzles at the tower top. The nozzles may be of either of two types, single fluid or two fluid. In the case of the two-fluid nozzles the atomizing agent is compressed air, while in the single fluid nozzle, the release of relatively high pressure through a small orifice is depended upon for atomization. Whatever the type of atomization, maintenance of uniform pressure at the nozzles is of primary importance to the quality of the product.

Success in crystallization of the washing powder depends in large measure upon prompt removal from the reaction zone of the latent heat released. This removal is accomplished by a blast of air through the tower. The quantity and velocity of the air must be sufficient to remove the heat of crystallization so rapidly that the temperature in the tower will not rise appreciably, thus permitting the crystallization to continue under a favorable temperature condition. When properly directed through the tower the air blast serves also to retard the fall of the washing powder through the tower sufficiently for completion of the crystallization before the product leaves the tower.

The final factor in spray tower design is that of suitable equipment for removal of the powder, its final treatment and packaging. When all the primary design data have been satisfied with respect to tower dimensions, nozzle pressure and temperature, cooling air volume and velocity, the sprayed powder falls to the bottom of the tower in suitable condition for handling. Its condition however, is such that the handling must be careful. Under even the best circumstances a certain amount of latent heat still remains in the product, therefore it must not be allowed to collect in deep layers, nor can it be subjected to violent mechanical handling, which, at this stage of manufacture, is likely to cause softening and agglomeration of the particles. For the same reason, the angles of the inner surfaces of the discharge hoppers must be steep, to avoid build up of powder into masses.

Wide, slow moving flat belts have been used successfully for the first movement of spray-process powder away from the spray-tower. With



GRANULATED SOAP DRYING TOWER

towers of suitable height it is possible to arrange an air-blast removal system for certain types of washing powders, but not for all. As the powder travels away from the spray tower, by whatever means, additional heat of crystallization is dissipated. The product is next generally passed through a screen of suitable mesh to separate any large lumps and may be sent over a fine mesh screen for the removal of fines, after which it is ready for packaging.

Washing powder is sold in 8 oz. and 1 lb. packages for household trade and in drums or slack barrels of various sizes for laundry and other industrial use.

In some instances the producer of washing powder by a spray tower process has had difficulty because of lack of sufficient height in the tower as originally installed. This has caused the crystalline particles to arrive at the base of the tower in a moist condition, which causes caking and packing of the product and loss of production. Such towers can sometimes be salvaged for satisfactory use by the application of special equipment, but their operation is less economical than would be the case if the tower were built of ample height.

Granulated Soap Towers

VERY dissimilar to washing powder in properties and in methods of manufacture are the granular powders of relatively high soap content or the pure soap products. All of these products are produced in what are known as "hot towers," where the sprayed soap is solidified to powder, granules or beads by contact with hot air. The problems involved in design of such a tower include all of those applicable to the washing tower plus several others of major importance.

The first consideration in design of a "hot tower" is the temperature to be maintained in the tower. It is a well known fact that moisture does not readily evaporate from soap at the normal boiling point of water (212° F.) but that considerably higher temperatures are required for quick drying of a soap product. For this reason a primary equirement of the "hot tower," for spray drying of soap products is an ample supply of heated air.

The air may be heated by direct combustion of coal, oil or gas, but for protection of the color of the soap product it is preferable to use a heater of the indirect type, where heat exchange is had between the products of combustion and the air to be heated, without actual mingling of the two. As in the crystallizing towers for washing powder, the velocity of air through the drying tower is of great importance to successful production.

In the drying tower, the flow of air may be parallel or countercurrent to the travel of the soap particles, but in either case considerable auxiliary equipment is required for handling the air blast and the sprayed soap, and separation of the latter from the former. The usual procedure is to spray the liquid mixture of soap, water (and chemicals, if the product is not to be pure soap) at the top of the

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Floor Oils and Sweeping Compounds

BY

Milton A. Lesser

FLOOR oils and sweeping compounds have always had much in common, especially their ability to control the spread of dust. Recent discoveries have linked these two types of sanitary products more closely than ever. Scientific studies on the transmission of disease have shown that the elimination of dusty dry sweeping through the oiling of floors or the use of sweeping compounds greatly reduces the number of air-borne bacteria and thus helps materially to curb air-borne infection.(1)

The idea that the air carries disease germs goes back to the early days of medical history. Discrediting the old "morbid miasms" theory, Pasteur demonstrated that the atmosphere owed its property of inducing decomposition to minute particles suspended in it. Lister carried the idea a step further with his phenol spray to kill air-borne bacteria. But with the development of aseptic precautions, the idea that air could carry disease organisms received but scant attention.

Within the last decade, however, technics have been developed which have again focused attention on the air as a source of infection. Following the trail, scientists have come to appreciate the part played by dry sweeping and dusting in stirring up pathogenic bacteria. For example, bacterial counts made in a hospital ward during sweeping and bedmaking have shown that as many as 8,000 bacterial particles were deposited per hour on a square foot surface.(2) Studies made to show the presence of hemolytic streptococci, have yielded startling results. Air samples taken while a hospital ward was quiet yielded fewer than two of these bacteria per cubic foot of air, whereas during dry sweeping or bedmaking the counts frequently increased to 15 or 20 organisms.(3)

With observations of this sort, it is not surprising that many studies were undertaken, all with the purpose of making pathogenic bacteria stay put on the floors or blankets instead of being carried away by a current of air caused by sweeping or any other movement.(4) Of course, information thus gained would be readily applicable to other phases of sanitation in institutions, public buildings and, of course, in the home. Scientists were also concerned by the fact that not only does dust act as a carrier for pathogenic bacteria, but that it also serves as a shield against germ-killing air disinfecting procedures using ultraviolet radiation, germicidal mists and others.(5)

English workers were first to appreciate the importance of dust suppression in controlling air-borne infections. They found that oiling floors and bedclothes was particularly effective. (6, 7, 8) Thomas and Van den Ende, (9) for example, found that oiling floors and bedclothes resulted in a 90 per cent reduction of air-borne bacteria in a hospital ward. In the United States, approximately the same results were obtained by similar methods in much more dusty army barracks.(3)

Especially pertinent to the present discussion is the fact that oiling the floors alone brings about a substantial reduction in the number of air-borne bacteria. In England, Anderson and his associates (10) investigated the regular use of spindle oil on floors to see if it could be employed to cut down the spread of air-borne infection in army barracks. Two units were employed in the tests, one serving as a control. In the treated units, the oil was applied in such a way as to leave an imperceptible film on the surface after thorough impregnation of the wood. In the unit where the floors were oiled, the average rate of respiratory infection was 7 per thousand men, as against 38 per thousand in the untreated, control unit. No major outbreak of respiratory infection appeared in the test unit, but in the control unit an outbreak of almost epidemic proportions did occur. The oil used was non-inflammable, caused no unpleasant smell and made the floors easier to keep clean.

Similarly, workers (11) of a U. S. Navy Medical Research Unit found that air-borne bacteria chiefly responsible for intraward infections could be controlled readily and cheaply by application of mineral oil on the floors. Reports from both American (3) and English (8) workers indicate that floor oiling alone can control 70 per cent or better of air-borne bacteria.

In the very significant report of Robertson and his associates (3) it was stated that on wood floors a single coat of pale paraffin oil was found to be highly effective in holding both lint and dust. Tests repeated over a period of many weeks showed this property to be undiminished. English workers had used spindle oil for

this purpose. For highly polished floors and linoleum, which are made somewhat slippery by oil, a compound consisting of 5 per cent urea, 3 per cent "ninol," and 0.1 per cent "roccol" was found to be satisfactory. While this mixture dried quickly, it held enough moisture to wet and exert a bactericidal action against dust falling on its surface. Its disadvantage lay in the fact that it requires frequent re-application and can be used only on nonporous surfaces.

The tie-up between floor oils and sweeping compounds becomes evident in the report of Feasby and Bynoe. (12) They found that there was a reduction in the number of cases of hemolytic streptococcus infection coming from barracks in which oiled sweeping compounds were used, as contrasted with barracks lacking such means of dust control.

With these new and very important factors in mind, it becomes quite evident why floor oils have taken on a new standing among sanitary products. Although products based on linseed oil have been classed as floor oils, the fact that linseed is a drying oil indicates that its status is essentially that of a floor finish. (13) Floor oils in the dust-controlling and floor care sense of the term, consist basically of non- drying, well-refined petroleum oils, like paraffin oil. (14) This is further evident in Federal Specification P-O-361 describing mineral floor oil as a straight-run petroleum distillate suitable for use on wood floors. The physical requirements of such petroleum oils are given in detail in the specifications.

FLOOR oils or mopping oils are best applied and give optimal results on well-washed, thoroughly dry floors. After the oil has been applied it should be rubbed until only a thin film remains, so that the floor will not be too "wet" or too slippery. However, with some of the more absorbent woods, subsequent rubbing may not be required.

The manufacture of the standard type of floor oil should not present any great difficulty. Indeed, an efficient floor oil can be made without further addition through the use of a petroleum oil of low viscosity, easy spreading and penetrating properties and a flash point of not less than 275°F. More commonly, it is general practice to include a suitable proportion of an odorizer like cedar oil or pine oil. Color may be imparted, if desired, by adding an oil-soluble color; yellows and reds being most generally used.

Of course numerous modifications and improvements are possible. Quite recently, for example, Trusler (15) has suggested the use of chlorinated paraffins and other chlorinated compounds as a means of reducing the combustibility and fire hazard. Other variations have been recommended in technical sources. The older literature (16, 17) often lists a combination of equal parts of neatsfoot oil, cottonseed oil and petroleum oil as suitable for oiling floors. In some cases, drying oils are combined with non-drying oils, presumably to provide a somewhat tougher oil film. A product of this sort has been described (18) as consisting of:

	Parts
Linseed oil	20
Turkey red oil	20
Camphor oil	5
Paraffin oil	22

In view of newer English practices, spindle oil has taken on a certain significance as a floor oil constituent. More fluid and lighter than the oils used in most American products, this petroleum oil has a quite low flash point. Suitably perfumed, this oil may be used by itself in making floor mop oils, or, if desired, it may have 5 per cent olein added, according to one standard technical source. (19) The same source suggests somewhat more rounded floor mop oils based on spindle oil. Illustrative is a product consisting of:

	Parts
Refined spindle oil	60
Petroleum	27
Camphor oil	3

Another oil of this class, containing a small proportion of drying linseed oil, is made from:

	Parts
Spindle oil	100.0
Linseed oil	3.0
Amyl acetate	0.3

A small proportion of oil-soluble color is advantageously added to such a product.

Turpentine and other solvents are often included in floor mop oils as in the following rather simple combination: (19)

	Parts
Paraffin oil	40
Turpentine	20
Cedar oil	¼

The above combination has been recommended (20) not only for impregnating but also for renewing so-called dustless floor mops and dusting cloths. Reimpregnation is done after the mop has been washed with soap and allowed to dry.

A certain amount of polishing ability may be imparted to floor oils by including various proportions of suitable waxes. In making such products, careful heating is generally required to bring the waxes into solution. Quite typical is a floor oil containing: (19)

	Parts
Mineral oil	92
Turpentine	5
Beeswax	1
Shellac wax	2

The waxes are dissolved in the oil on a water bath, and after cooling, the turpentine is added and stirred in.

Made in the same way is a slightly different product consisting of:

	Parts
Mineral oil	46
Beeswax	½
Carnauba wax	1
Turpentine	3

As in other types of floor care products, attempts have been made to prepare concentrated materials that may be diluted with water prior to use. Illustrative of such products is a so-called "water-soluble" floor oil, which, according to Bennett's text, may be made with the following materials and method:

	Parts
Spindle oil	40
Talloil, crude	20

Mix, warm to 70°C., and add in a thin jet:

Caustic soda, 38°Be.....8 parts

Boil to saponify and then add

Spindle oil .....27 parts

Boil shortly and then add boiling

Water ..... 5 parts

To use this product, add one part of the prepared oil to from six to 10 parts of water.

Another, older, patented, non-drying floor oil, containing a soap formed *in situ*, contains

	Parts
Mineral oil	68
Oleic acid	18
Ammonium hydroxide	4
Pine oil	10

THE function of sweeping compounds is well indicated in such alternate names as "floor sweep" and "dust down." As above indicated in the report of Feasby and Bynoe,(12) oiled sweeping compounds, as with floor oils, have taken on new importance as useful means for reducing the spread of air-borne infection.

It is quite true that ordinary sawdust, bran, bits of paper or the like, moistened with water will work quite effectively as means for laying dust during sweeping. Even moist tea leaves have been used for this purpose in the home. Salt is another common, but not too efficient means for controlling dust during sweeping. One rather old-fashioned, salt containing, dry sweeping compound, admitted to be not quite as efficacious as oiled products, is described (21) as being made from:

Calcium chloride	1 oz.
Sea salt	5 lb.
Bran, to make	15 lb.

Somewhat more modern is a dry combination of ingredients to make the following (19) sweeping compound:

	lb.
Sand	100
Salt	15
Sawdust	40

Water - moistened sweeping compounds or dry preparations such as the above may perhaps be more suitable than oiled products on flooring that may be affected by oils, such as linoleum rubber, asphalt tile or mastic. Of course this last consideration depends to a large extent upon the amount of free oil in the sweeping compound and the oil residue left on the floorings.

From the commercial aspects, and especially in view of the newer findings of health workers, oiled sweeping compounds would appear to be by far the most important and efficient types. Products of this class are made from not-too-varied kinds of raw materials. Sawdust and related substances generally form the bulk of such products, but sand is often incorporated in major proportions. Salt, ground feldspar or the like are also commonly included. Oils, generally paraffin oils or other petroleum oil, are essential for "wetting" and holding dust and other particles. The amount of oil used is controlled by the type of flooring upon which the sweeping compound is to be used; a higher proportion being employed for unfinished floors.

Color is an important consideration in such compounds; iron oxide and other pigments often being used. However, as pointed out by Cummings,(22) water-soluble or oil-soluble reds and greens are suitable for the purpose. Malachite green and croceine scarlet were recommended as suitable water-soluble dyes, while alizarin oil green and azo oil red were suggested for use with oils.

Napththalene flakes and odorizing oils, like oil of eucalyptus, cedar or sassafras, are often included to provide a pleasant scent or to cover the unpleasant smell of certain ingredients. Pine oil, creosote, phenol and other materials of a similar nature are sometimes included to impart a disinfectant action.

As is already evident, sweeping compounds are comparatively simple products. Indeed, a quite efficient sanitary item of this type may be prepared by adding one pint of paraffin oil to each 100 pounds of sawdust and mixing well. If a colored compound is desired, a little oil-soluble dye is added to the oil. Also an odorizer like oil of cedar or oil of sassafras may be included.(23)

A CHECK of various specifications indicates the general requirements of sweeping compounds. Federation Specification P-C-591a gives details on the standards for standard sawdust - sand - mineral oil sweeping compounds. Tentative Specifications 5-C-3:38T of the Department of Purchase of New York City calls for a sweeping compound that may be with or without color, free from objectionable odors, shall not stain flooring or adjacent surfaces and shall not give off flammable vapors below 66°F. The composition is described as one containing a maximum of 10 per cent volatile matter, from 15 to 20 per cent refined mineral oil, 35 to 50 per cent sand and the balance sawdust. No fatty oils are permissible.

Standard type sweeping compounds are described in technical and other sources. For example, the Treasury Department is said (14) to have used a compound made up by thoroughly mixing the following materials; the proportions being given in parts by weight:

	Parts
Sand	10.0
Fine sawdust	3.5
Salt	1.5
Paraffin oil	1.0

According to Smither, certain Government offices have reported that a sweeping compound based on the following formula has given satisfactory service:

	Parts
Fine sand	35
Pine sawdust	40
Paraffin oil	15
Water	10

Dye is included if coloring is desired.

Balanger (24) provides a formula for a well-balanced, well-rounded sweeping compound, as follows:

Fine sawdust	100 lb.
Sea or lake sand	18 lb.
Salt	20 lb.
Paradichlorobenzene	3 lb.
Oil of cedar leaf	2 lb.
Pine oil	2 lb.
Paraffin oil	2 gal.
Oil-soluble color	sufficient

Dissolve sufficient color of the desired shade (green is most commonly used) in the paraffin oil by means of heat to give a deep color. While still hot, add the paradichlorbenzene, and after cooling somewhat, add the cedar and pine oil. Spray the oil mixture over the sawdust, with good mixing. Then combine the treated sawdust with the salt and sand.

It is pointed out that the above formula gives a sweeping compound of the grade commonly used for ordinary wood floors. For rough floors, the quantity of oil may be increased. If it is to be used on carpets, the quantity of oil should be reduced to 1½ gallons and the sand omitted.

Numerous variations in sweeping compound formulation are possible. Thus, one product patented (25) a number of years ago is described as a floor-sweeping, dust-col-

lecting material containing paraffin oil and sawdust mixed with feldspar ground so as to produce crystalline fractures presenting sharp edges.

With certain types of sweeping compounds, it is sometimes suggested that a suitable proportion of wax be added; the wax generally being melted with the oil by careful heating. Illustrative is a dustless sweeping mixture containing:(19)

	Parts
Sand	50
Sawdust	25
Mineral oil	20
Beeswax	5

Also illustrative is a heavy duty sweeping compound recommended (20) for use on shop floors and consisting of:

Paraffin wax	4 oz.
Yellow paraffin oil	1 pint
Sawdust	20 lb.
Coarse salt	1 lb.
Fine sand	8 lb.

Quite a number of suggestions have been made concerning materials suitable as replacements for sawdust. Bran, of course, has long been used for this purpose and various seed meals have been used as partial substitutes, as in the following formula:(26)

Mineral oil	30 fl. oz.
Sawdust	7 lb.
Ground oil cake	10 lb.
Linseed meal	5 lb.
Oil of eucalyptus	3 fl. oz.

Other waste products of industry have also been recommended for this purpose. Sisal hemp tailings from cordage factories have been advocated (27) to replace sawdust in making certain sweeping compounds of the mineral oil-sand type. Urging the use of cottonseed hull bran, Olcott (28) of the Cotton Research Foundation has claimed that the following compound, which is patented, (29) gave results superior to a commercial sawdust base product:

	Per Cent
Cottonseed hull bran	95.6
Paraffin oil	4.4

As a result of war needs, attention has been given to sweeping, dust-laying compounds with more potent antibacterial action. In England a formula was suggested for a preparation which could be sprinkled on the floors of crowded places and swept up after the occupants had left. The basis of the preparation was sawdust which was well mixed with 10 to 15 per cent of its weight of sodium sulfate powder. This was mixed with a suitable quantity of spindle oil (e.g. 10 to 20 per cent) and about 5 per cent formaldehyde solution. The odor of the formalin was masked by adding one per cent of a suitable essential oil and the whole mixture colored with a water-soluble dye.

The resulting product was a pleasant-looking, agreeably - perfumed granular material that could be sprinkled on floors of air raid shelters, subway stations, parquet floors and the like, left there for any desired time and then swept up. It had a powerful cleaning action. The formaldehyde effectively accounted for any undesired bacteria and the dampness of the mixture with its oil and water content prevent dust rising as it was being swept. According to the report (4) on this compound, it was never marketed commercially.

Of related interest is a method described in the same publication (30) for treating wood chips so as to provide a floor disinfectant. Here it was suggested that a suitable product could be made from:

	Parts
Wood chips	88
Formalin	10
Color	1
Pine oil	1

Newer to the field are the water-wax emulsion type of sweeping compounds, which are said (14) to be an outgrowth of the development of the water-emulsion floor waxes. In this type of product, the mineral oil is replaced with waxes, resins, water and suitable emulsifying agents. Instead of leaving a thin film of oil on the floor, a film of wax is deposited. This wax type of sweeping compound is intended for use on flooring materials that may be adversely affected by oils. Requirements and standards for sawdust - sand - water wax emulsion sweeping compounds are given in Federal Specification P-C-591a.

Scientific investigations have placed floor oils and sweeping compounds in a new, important light as major sanitation products. Alert manufacturers will take cognizance of this new status and act accordingly.

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Dispersing Agent for Gases

A saponin-free extract from saponin-bearing plants such as quillaja back is particularly effective for production of gaseous dispersions in water. A stable dispersion of gas can be formed by agitation of a solution of 1 gram of such a substance in 120 ml. of water. A. J. Tiede, to Grover C. Bear. U. S. Patent No. 2,381,939.

BUBBLE

GENERATIONS of children have blown bubbles with soapy water. But, when adults buy special bubble solutions and the gadgets to go with them, presumably for the amusement of the kids, and they proceed to have fun themselves—that's news. Call it what you will—fad, craze or a form of relaxation, the fact remains that from coast to coast people are spending substantial sums of money to blow bubbles. According to "Life," more than 50,000 jars of bubble solution were sold in Atlanta, Ga., alone, in one week.

The wave of bubble blowing started when several manufacturers marketed more or less viscous fluids, which, when blown through small metal hoops, produced many bright, iridescent bubbles. Unlike old-fashioned, homemade soap-and-water solutions, the manufactured products, generally containing substantial proportions of glycerine, produce a generous volume of tough, dry-looking bubbles both indoors and out—bubbles that are colorful, long-lasting and do not break as easily as the older, more familiar kinds.

Being good businessmen, bubble solution makers have not gone out of their way to reveal their formulas. However, one does not have to go far to learn the "secret" of making comparable products. Scientists, engineers and technologists have long used soap bubbles and soap films to solve intricate problems in mathematics, to study stresses and strains in beams and supports, to follow the combustion of gases and to clarify other theoretical questions. Aside from a number of technical papers on the subject, at least two books have been written about bubbles. One of these, written by Lawrence (1) in 1929, is a technical treatise on the subject, while the other, written by Boys (2) four years earlier, although providing much scientific data, also tells how to have fun with bubbles. By checking through these articles and books, it is possible to find out what science has learned about making tougher, longer lasting bubbles and to apply this information to making bubbles for fun.

It was learned early that soap bubbles could be toughened by the use of glycerine. Such solutions still find very extensive use and are not particularly difficult to make. Quite a number of simple bubble solution formulas based on such combinations are available. One of these, given in a technical reference text (3) is made from:

Pure castile or palm oil soap...	1 part
Distilled water	8 parts
Pure glycerine	4 parts

Cut the soap into thin shavings (or use flake soap) and dissolve in the water. When solution is complete, add the glycerine and mix thoroughly. On standing the liquid becomes clear at the bottom. The clear portion is drawn off (e.g., by means of a siphon) and keeps indefinitely. It is this portion that is used for making tough, long-lasting soap bubbles.

An identical solution was recommended recently by Luther (4) in his brief article on tricks with soap

SOLUTIONS

BY

By Robert A. Stetson

bubbles. However, variations on this basic combination have been suggested for making bubble solutions. One such (5) consists of:

Castile soap	2 parts
Glycerine	30 parts
Water	40 parts

A much more dilute, frequently recommended soap bubble solution may be made along the following lines:

Hard soap	25 parts
Glycerine	15 parts
Water	1000 parts

Various means for increasing the toughness and lasting properties of glycerine-soap bubble solutions have been suggested from time to time. Many of these, while efficacious for laboratory or demonstration purposes, are not especially feasible for commercial use. For example, Cook (6) has recommended the use of minute portions of tannin; this to be added to the solution just prior to use.

Soap-glycerine solutions should be aged for at least twenty-four hours before use and only soft or distilled water should be used. Color can be added to the solutions, but even with strong dyes the bubbles themselves are apt to be rather pale. One way to color bubbles and obtain a fluorescent effect is to add a small amount of fluorescein to the solution. With the use of any color, however, one cannot overlook the tendency to form stains on floors, walls and furniture when bubbles are blown indoors.

With their need for eliminating all variable factors in their investigations, technologists have developed bubble solutions based on soaps made from single fatty acids rather than depend upon the mixed fatty saponification products found in regular soaps. Of the simple oleate-based products, Boys' solution is undoubtedly the best known and most widely used. According to the original source (2), this is a slightly less than 2 per cent solution of pure sodium oleate made by dissolving the soap in water, and adding one-third its volume of glycerine. This is allowed to stand in the dark for several days and then the clearer liquid is siphoned off and one or two drops of stronger ammonia water added per pint of solution.

A more specific formula calls (7) for the use of:

Sodium oleate	10 Gm.
Water	400 cc.
Glycerine	100 cc.

Dissolve the oleate in the water, with occasional shaking, until dissolved, which may take several days. Do not beat. Then add the glycerine and allow to stand for two or three days. Remove the clearer portion and add one drop of stronger ammonium hydroxide. Do not filter.

Others omit the ammonia from Boys' solution. For example a more up-to-date solution, employed by foreign workers (8), consists of 2.5 per cent of sodium oleate and 25 per cent glycerine in water. Lawrence (1), however, recommended a 5 per cent solution of ammonium oleate in 50 per cent glycerine as a very effective solution for making long-lasting soap bubbles and films.

Noteworthy is the finding that substituting the simple bases with amines resulted in even stronger and longer-lasting bubbles. For example, in their aeronautic investigations, Thayer and March (9) observed that bubbles based on triethylamine oleate were quite satisfactory for outdoor use; confirming an earlier discovery made by a leading authority on soap bubbles and films. To make such a soap, Lawrence (1) suggested that 10 c.c. of pure oleic acid, 76 c.c. of water and 54.4 cc. of glycerine be shaken well together and to this be added 3.23 Gm. of triethylamine in 30 cc. of water. The practicality of such a solution was made evident in studies on airplane beams reported by Wheeler (10). The solution found most satisfactory was made by adding a very small amount of triethylamine oleate to a 50 per cent solution of glycerine in distilled water. Films made from this solution often lasted throughout an entire working day.

In 1935, Johnson (11) found that substituting triethanolamine oleate for triethylamine oleate yield soap films lasting several days. In his comprehensive review on soap bubbles, Cook (6) describes a method for making such bubble solutions. In his procedure, any convenient weight of triethanolamine is thoroughly stirred with a little less than twice its weight of oleic acid in a flask; no heating being necessary. The flask is stoppered and set aside for one day. A 30 Gm. portion of the resulting soap is mixed with about a liter of distilled water, in which it slowly dissolves, speed of solution being hastened by shaking. Allow to settle for twenty-four hours. The solution becomes translucent but never quite clear. The lower, light-gray layer is siphoned off and well mixed with three-tenths of its volume of glycerine. The solution should be stored in bottles with tight closures.

Soap bubble solutions may be thickened with various natural gums or synthetic substances to produce longer-lasting tougher bubbles, suitable for both indoor and outdoor use. For example, the following product, containing gum arabic, is said (12) to have been used for advertising purposes and for spectacular effects:

Coconut potash soap (anhydrous basis)	15.0 parts
Gum arabic	2.0 parts
Glycerine	6.0 parts
Basic dye, about	0.3 part
Water	76.7 parts

Used to prepare very large soap bubbles of lasting value, this preparation has proved very useful indoors, but is readily employed in the open provided the wind is not too high. If desired the

(Turn to Page 75)

Fat and Oil Supplies ... The Market Outlook

THE current oil and fat supply situation was reviewed, and the future outlook forecast in a talk by John B. Gordon, U. S. Bureau of Raw Materials for American Vegetable Oils and Fats Industries, before members of the National Association of Insecticide & Disinfectant Manufacturers, meeting in New York, December 3. Brief extracts from Mr. Gordon's talk follow:

"The War Food Administration is still carrying on on a reduced scale, but it has been merged with the Department of Agriculture. Agriculture now administers all War Food orders, of which there are only 54 remaining from a total of 171 issued at one time or another. Of those still in effect, eight orders relate to oils and fats, as compared to a total of 21 orders in operation in October, 1943.

"The eight fats and oils orders remaining are WFO 42, which controls the use of oils and fats in edible products, such as shortening, salad and cooking oils, and oleomargarine; WFO 42a, which regulates the use of oils and fats in protective coatings, coated fabrics and floor coverings; WFO 42b, which sets the quota on the use of oils and fats in soap; WFO 43, which carries restrictions on the use, processing, sale and delivery of coconut, babassu, palm kernel and other high lauric acid oils; WFO 29, which carries restrictions on the use of cottonseed, peanut, soybean and corn oils; WFO 124, which regulates linseed oil inventories; WFO 67, which regulates inedible tallow and grease inventories; and WFO 63, which carries import restrictions on certain oils and fats still purchased by the Government along with other import items of interest to the War Food Administration.

"First, let me say that the removal of edible oils and fats from rationing by OPA does not indicate any Washington belief that fats and oils are plentiful. Such is not the case. The facts are that the available supply is woefully inadequate to meet domestic demands plus the requirements of the re-occupied areas which must look to us for the bulk of their supply.

"Both the OPA and the Department of Agriculture, which bear joint responsibility in policy determination on the rationing of foods, would have preferred that edible fats and oils continue under rationing at the time meat rationing was abandoned. However, meats and fats and oils were all rationed together from the same red points from the same ration book. With meats off rationing, the consumer would have had such a surplus of red ration points that for all practical purposes there would be no limit on the amount of fats and oils which he could buy. Therefore, the OPA would have had to call in the outstanding ration books and issue new ones. They said they didn't have enough of their organization left to do this, so it was decided to abandon the rationing of both meats and fats and oils simultaneously.

"Oils and fats will remain in short supply all through 1946. Our cotton crop is short, which will mean less cottonseed oil. Our soybean crop is not quite up to expectations. The diminished number of hogs on farms and the tremendously reduced rate of slaughter of hogs has resulted in a greatly reduced production of lard and grease. Only in the past few days have hogs begun to move to market in any volume and they are coming in such numbers that the packers do not have the manpower to handle them. The farmers held their hogs back until they had time to feed them up with new crop corn. The increased slaughter in prospect will ease up the lard and grease supply situation, but there still will not be enough to adequately meet the demand.

"There is an increased slaughter of beef cattle and this will mean a larger production of tallow as the large number of beef cattle now on feed move to market, but the supply will continue short of demand all through 1946. Linseed oil supplies during 1946 will be far below requirements.

"Foreign sources of supply are being drawn upon so heavily by the liberated areas of Europe that there is not much hope of replenishment of domestic supplies from areas other than the Philippines. From the Philippines we hope to get 300,000 tons of copra for the production of coconut oil during 1946. There is a bare possibility that a small amount of palm oil may be obtained from Sumatra late in 1946.

"Washington's opinion is that prices for all domestic oils and fats will remain at ceiling all through 1946. As to what may happen to the prices of foreign produced oils and fats and oil-seeds, this will be a matter of whether or not the Combined Food Board, which allocates supplies of same among the United States, Great Britian, Canada and the field of European claimants, continues to function through all of 1946. An illustration of what could happen if competitive bidding were given free sway is the price of around $250 per ton bid by Mexican buyers for copra from Tahiti, or well over three times the price which we pay the French for the production of their Pacific Islands.

"I was in the Philippines for a month during the past summer looking into the prospects of obtaining copra. The commerce of the Philippines was reduced to absolute zero by the ravages of the Japanese. The greatest blow received by Philippine commerce was the destruction of their inter-island shipping.

"With the arrival of our troops, money became too plentiful because of the free spending of our armed forces and merchant seamen and heavy payments to Filipino labor around military installations. With things available for purchase reduced to the minimum, a terrible inflation took the country's economy by the throat.

"You can well imagine that with these terrific handicaps it will take Filipino economy a long time to beat its way back to a normal condition. The first step, viz., the restoration of the purchasing power of the peso, is now being carried out by the United States Government by permitting the use of enough of our ships to carry from this country as much merchandise as the Filipinos have the facilities to warehouse and distribute and the money to purchase. Supplies have to be fed in gradually as they cannot handle them anywhere near as rapidly as they could if all facilities were in proper condition.

"The coconut oil mills are all destroyed except for one small Chinese-owned mill, capable of crushing about 2,000 tons of copra per month. Only copra can be shipped, as it will be a year or so before the other oil mills can be put into partial operation.

"When the Japs left, they did not even leave the bags in which copra could be shipped to market. They have been shipped to the Philippines by the million. A few interisland steamships have been put in operation by the War Shipping Administration. The number in operation is insignificant, but more will be forthcoming. Three hundred trucks are being shipped to the Islands for use in the carrying of copra. Only 100 have reached there as yet. The Army is releasing surplus trucks for general transportation. Private importers are bringing even larger numbers of trucks and some automobiles in to the Islands.

"Copra is beginning to move. Thirty-three hundred tons are now on the way to the United States. Three hundred thousand tons are expected to move out in 1946 by Copra Export Management Company which is buying copra in the Island for the U. S. Commercial Company. Of course, this is only one-half the amount which would be expected to move out under normal conditions, but it will be a good many years before normal conditions are restored in the Philippines."

SPRAY PROCESS FOR SOAPS

(*From Page* 31)

tower, supplying a blast of heated air near the bottom for counter-current flow. The product falls to the conical bottom of the tower and can be removed by a separate conveyor of helical types or by a pneumatic conveyor. In this type of operation there is always a considerable amount of light product which passes overhead with the hot air blast, therefore this used air must be passed through a somewhat elaborate system of separators for collection and removal of such fines. That portion of the fine material which is usable can be transferred to the product, while the finest dust is usually remelted and returned to the tower feed.

The usual "hot tower" installation employs pressure atomizing nozzles rather than the two-liquid nozzle for air atomization. Pressures range as high as 1500 p.s.i. or more.

The products of drying towers, as previously stated, fall into two classes, those containing small percentages of alkaline builders and those which consist only of pure soap and moisture. The temperature of the soap mixture as sprayed and of the heated drying air are both generally somewhat lower when there are alkaline builders present than when pure soap products are being produced. The patents which for some time controlled the production of the pure soap powders were based upon the principle of very high temperature operation.

An interesting variation of the usual pure soap spray tower is the vacuum tower, operation of which was developed as a variation of the patents above mentioned. When the hot liquid soap is sprayed at very high nozzle pressure into a partial vacuum where a high temperature is maintained, some of the moisture evaporates from the surface of the droplets of soap while another portion of the moisture flashes into steam within the droplet, with just sufficient expansion to produce a small round bubble of soap. It is in this manner that several well-known brands of soap have been produced in "bead" form.

Such hollow beads of soap have several advantages. From the user's standpoint, they dissolve more readily than do solid particles. From the maker's point of view, the greater specific bulk of the beaded product is an advantage, making a larger package for equal weight than with other forms of granular soap products.

Many smaller soapmakers have inquired about the possibility of building a combination spray tower for production of both washing powder and granular soaps. At first study, this offers a most interesting engineering problem. The primary requirement of the delivery section of the washing powder tower is that it be open to allow free access of air to the powder and removal of the product in thin layers without mechanical handling until it is thoroughly cooled and crystallized. The "hot tower" on the other hand must be kept well closed to avoid heat losses, the product being dry enough as it reaches the bottom of the drying chamber to permit its removal by means of a helical conveyor or an air blast. The problem of combination of the designs to permit alternate operation of a tower on either type of product has been solved in a unique manner and construction is advancing on several such installations.

As the demand for granulated soaps will undoubtedly increase steadily in the future, due chiefly to wider distribution of domestic washing machines, the average small soapmaker will be keenly interested in the development of equipment for manufacture of this type of soap product.

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Sunflower and Safflower Oils

The 28 samples of sunflower seed examined, representing four varieties grown at seven locations, contained an average of 29 per cent of oil composed of 51-68 per cent of linoleic-acid glycerides. The eight varieties of safflower seeds grown at Huntley, Mont., contained an average of 33 per cent of oil, with an average content of 78 per cent of linoleic glycerides. R. T. Milner, J. E. Hubbard, and M. B. Wiele. *Oil & Soap* 22, 304-7 (1945).

TRADE NEWS. . . .

Howard Young Out of Navy

Howard Young of the Davies-Young Soap Co., Dayton, O. for the past two years a lieutenant in the Navy serving in the South Pacific, has returned to his duties in charge of purchasing for the company. He is a son of Fred Young, chairman of the board and a brother of Russell H. Young, president. Another brother, John Young is still on active duty as a Navy lieutenant in the Pacific, but is expected to return to his position with the company in the near future.

N. Y. BIMS Dinner Jan. 24

BIMS of New York will hold its annual dinner on January 24, 1946 at the Hotel Lafayette, New York, according to an announcement by Martin F. Schultes of Hewitt Soap Co., chairman. Indications are that owing to the limited facilities of the Lafayette Hotel that attendance may have to be restricted to members only.

Fats & Oils Report Available Now

The monthly reports of the Department of Commerce on Fats and Oils are now being distributed free on request to those writing the Department, it was learned recently. During the war the monthly report was issued to government officials only. With the release of restrictions on foreign trade statistics, the monthly report now becomes publicly available. Those wishing to be placed on the mailing list are advised to write to the Publications Unit, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington 25, D. C.

Howard Joins Maas

Nelson A. Howard, Jr., joined the staff of A. R. Maas Chemical Co., in Los Angeles, after having served with the Navy for 39 months, the company announced early last month. Mr. Howard, who is a former Naval Air Corps lieutenant commander, will specialize in new market development. He was formerly associated with American Cyanamid & Chemical Corp. in Southern California and Houston, Tex.

Dr. K. L. Russell of Colgate-Palmolive-Peet Co., chairman of the scientific section of the Toilet Goods Association, which met at the Hotel Biltmore, New York, last month.

House Investigates Soap Quotas

The House Committee on Small Business was reported last month to have begun an investigation of the WFA system of quota and base period controls over the amounts of fats and oils that soap makers may use. The investigation followed charges by small soap makers that they had been discriminated against by the WFA in the distribution of inedible fats and oils.

DCAT Elects Altschul

Harold M. Altschul, president of Ketchum & Co., New York, was elected president of the drug, chemical and allied trades section of the New York Board of Trade at a meeting Dec. 13, of the section's new executive committee in the Drug and Chemical Club. Dr. Carlo M. Bigelow, of the Calco division of American Cyanamid Co., was elected vice-chairman. Robert B. Magnus, vice-president of Magnus, Mabee & Reynard, Inc., and Helen L. Booth were reelected treasurer and acting secretary, respectively.

Rug Cleaners to Meet in Chi.

The first annual convention of the National Institute of Rug Cleaners is scheduled to be held in Chicago, at the Hotel Continental, Feb. 4-6, the Institute announced recently. In addition to discussions of various problems affecting the industry, there will be exhibits by supply and equipment manufacturers, as well as a visit to the plant of a Chicago member of the Institute. Group insurance for employees of members and arbitration privileges of the American Arbitration Association are on the convention discussion program.

Nu-Way Appoints Two

The appointment of J. P. Burkhead as sales manager and Leigh G. Northrup as office manager, both formerly of the Arkansas Ordnance plant at Jacksonville, Ark., was announced recently by Nu-Way Products Co., North Little Rock, Ark. In addition, it was learned, the company is erecting a modern plant at 6th and Smothers Sts.

Ralph Haag Rejoins Haag Labs.

Ralph Haag, younger son of V. W. Haag, president of Haag Laboratories, Inc., Blue Island, Ill., recently discharged from the U. S. Navy, has joined the sales division of the Haag organization. Mr. Haag's younger son, who is twenty-five, was a Lieutenant, Senior Grade. He will eventually be vice-president in charge of sales, while V. W. Haag, Jr., twenty-nine, who has been with the company for seven years, is vice-president in charge of production. With Miss M. E. Sharpe, secretary-treasurer, who has for eighteen years managed the office end of the business, this will complete the executive set-up of the company. Haag Laboratories are just getting settled in their new plant where capacity for the production of potash soaps has been substantially increased and new equipment installed to improve quality, particularly clarity.

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New Products for Pepsodent

The Pepsodent division of Lever Bros. Co. will launch at least three new products in the next year or two, according to an article in the December 15 issue of *Tide* magazine. One of the new products is to be a hair tonic, according to *Tide*. The formula for "Pepsodent" toothpaste has been revamped and the new product will be packed in a new and simpler package featuring a series of red and white candy stripes. The article in *Tide* is concerned chiefly with the career of Charles Luckman, newly appointed executive vice-president of Lever Bros. and head of the Pepsodent division.

Charles Luckman, left, has recently been elected to the newly created position of executive vice-president of Lever Bros. Co., Cambridge, Mass. Henry F. Woulfe, right, has been named vice-president and general manager of the Pepsodent division of the company. Mr. Luckman continues as president of the Pepsodent division, but Mr. Woulfe succeeds him as its operating head. Mr. Luckman was expected to move to Boston to assume his new duties on January 1.

Nay Heads Chicago Soap Assn.

Walter R. Nay, Chicago manager of Mallinckrodt Chemical Works, St. Louis, was elected president of the Chicago Perfumery, Soap & Extract Association at the annual meeting Dec. 4. He succeeds F. A. Degner of Heyden Chemical Corp. Stanley Lind of Harry Holland & Son, Inc., was elected vice president; Carl W. Edwards of Fritzsche Bros., Inc., secretary, and W. F. Kammerer of George Lueders Co., treasurer.

WHC Adds 3 Salesmen

E. D. Stults, president of Welch, Holme & Clark Co., New York, announces the recent appointment of three new members of the WHC sales staff. The new salesmen, all of whom were formerly in government service, are Clark O. Damon, formerly of the HQ Army Garrison Force—GI Section, Richard Hayes, 1309th U. S. Army Engineers, and Charles F. Frey, U. S. Coast Guard. Mr. Frey had just graduated from William & Mary College before entering the Coast Guard. Mr. Hayes had been with Ward Leonard Electric Co., Mt. Vernon, N. Y.

Starts Orange Chem. Co.

Walter E. Nason, who was recently discharged from the U. S. Navy, in which he has served as Chief Yeoman since 1942, has organized Orange Chemical Co. in Orange,, Texas, and will engage in the sale of cleaning compounds to institutions and other large users. Before entering the service he was a partner in The Nason Co., Dallas, Texas, the firm being continued by his partner while Mr. Nason was in service.

Sees Doubly Effective Soaps

A prediction that the finding of a method which will permit more effective use of molecularly dehydrated phosphates will nearly double cleansing powers of pure soap was contained in a recent address by Russell N. Bell, research chemist in the Chicago Heights laboratories of Victor Chemical Works, before the American Chemical Society's meeting at Northwestern U. Mr. Bell said that a research project he has been supervising has produced such a method. He further stated that ways to control the best of the molecularly dehydrated materials — tripolyphosphates — during the (soap) manufacturing process had been found.

Col. O. W. Herrmann Joins USDA

Col. Omer W. Herrmann, a member of Gen. Eisenhower's staff as chief of the Food and Agriculture Section of SHAEF, was appointed assistant director of the Fats and Oils Branch, Production and Marketing Administration, U. S. Department of Agriculture, it was announced Dec. 13. In charge of civilian feeding and agricultural rehabilitation for Northwest Europe while attached to SHAEF, Col. Herrmann had assignments in the Mediterranean theatre and with Headquarters, Army Service Forces, in the U. S. prior to the establishment of SHAEF in Feb., 1944.

Packaging Exposition Apr. 2

The Packaging Exposition of the American Management Association will open on Apr. 2nd for a four days showing in the municipal auditorium, at Atlantic City, N. J., it was announced last month. The AMA Packaging Conference will be held at the same time in another section of the auditorium. About 120 company exhibits are expected to be shown on the four-acre exhibition floor.

Illinois Mfrs. Elect Eastwood

George R. Eastwood, of Armour & Co., Chicago, was elected a director of the Illinois Manufacturers Association at the annual meeting in Chicago, Dec. 11, which was attended by over 2,000 industrialists.

Introduce "Sutho Suds"

Sutho Suds Co., Indianapolis, Ind., is introducing a new soapless washing powder, "Sutho Suds" in the California market.

Neutroscents

EFFECT THESE RESULTS:

1. They neutralize objectionable odors.
2. They substitute new, agreeable scents.

Offered in 10 distinctive odors, NEUTROSCENTS cover a wide range of deodorizing and re-odorizing uses. They provide a sound basis for eliminating the objectionable odors often associated with sick rooms, hospitals, restaurants and kitchens, theatres, smoking rooms, convention halls, institutions, etc.

NEUTROSCENTS are available in three different forms—as Concentrates, as Water Soluble Compounds and as Solubilized Compounds. This anticipates their use by every practical method of dispersion, i.e., by simple open receptacles, by spraying devices, by aerating and air conditioning machines, by porous ceramics and other dispersion devices.

A bulletin describing this entire group—odors, prices, etc., — is available for the asking. Write us for one if you are at all interested in odor control as indicated briefly above; NETUROSCENTS may prove the happy answer to some of your present or future odorizing problems.

FRITZSCHE BROTHERS, Inc.

PORT AUTHORITY COMMERCE BLDG., 76 NINTH AVENUE, NEW YORK 11, N.Y.

BRANCH STOCKS

BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MEXICO, D. F.

FACTORIES AT CLIFTON, N. J. AND SEILLANS (VAR) FRANCE

Report on Fat Salvage

The Third Annual Report of the Fat Salvage Campaign has recently been issued by the American Fat Salvage Committee. In its three years of operation, the fat salvage program has resulted in the recovery of 549,246,000 lbs. of fats, 378,780,000 lbs. of this total from civilian sources and the balance by the armed services. In each of the past two years fat salvage has represented 11.3 per cent of the total U. S. production of inedible tallow and grease. The cost of the campaign is reported to have averaged 64/100ths of a cent per pound of salvaged fat.

Expenditures for advertising space, preparation of copy, publicity, field work, etc., for the 12-month period ended July 31, 1945, totaled $1,477,800. In addition, there were substantial donations of newspaper space and radio time, by publishers, radio chains, soap companies and other national advertisers.

Roy W. Peet, vice-president of Colgate-Palmolive-Peet Co., is chairman of the American Fat Salvage Committee, and Grafton B. Perkins, vice-president of Lever Bros. Co. and D. M. Pfeiffer, president of the National Renderers Association, the two vice-chairmen. Wilder Breckenridge of Kenyon & Eckhardt has acted as manager of the committee in charge of the campaign.

Figures on monthly fat collections for 1945 follow:

	Pounds
January	15,050,000
February	14,073,000
March	17,332,000
April	15,307,000
May	13,533,000
June	11,498,000
July	10,049,000
August	9,380,000
September	8,011,000
October	10,735,000

Mattson Forms Own Company

K. C. Mattson, formerly Los Angeles branch manager for Griffin Chemical Co., recently announced the formation of Mattson Chemical Co. to act as west coast agent for chemical manufacturers serving the soap, detergent, pharmaceutical, petroleum and food processing industries. The company has offices at 124 W. Fourth St., Los Angeles 13.

Joseph A. Danilek was recently named sales manager of Affiliated Products, the cosmetic division of American Home Products Co. Mr. Danilek was formerly manager of Elizabeth Arden and comptroller of Helena Rubinstein.

Francis McHugh Dies

Francis J. McHugh, executive vice-president of the New York Quinine & Chemical Works, Brooklyn, died December 13 following an emergency operation for appendicitis in the Midwood Hospital, Brooklyn. He was 37 years old.

New Cleaner for Swift

Swift & Co., Chicago, are advertising "Swift's Household Cleanser," a new kitchen scouring compound. Users have a choice of containers in three colors, red, green and blue.

Detrex in New L. A. Office

New and larger Pacific coast region offices of Detrex Corp., Detroit, have been established at 112 W. Ninth St., Los Angeles, the company announced early last month. S. B. Crooks, Pacific manager, is in charge of the office, which functions as sales and service headquarters for the Pacific Coast and Rocky Mountain States

Turner Joins Phila. Quartz

Dwight L. Turner, a graduate chemist of North Carolina State University and recently honorably discharged from the U. S. Army Air Forces, has joined the sales staff of Philadelphia Quartz Co., Philadelphia, the company announced recently. Mr. Turner, who is a native of Greensboro, N. C., has been assigned to the southern territory.

MEM BUYS BUILDING

Paul M. E. Mayer, president of Mem Company, New York, has recently acquired the 12 story loft building at 67-69 Irving Place, where the Mem offices are located. Mem will use most of the building for manufacture of men's toiletries and for offices and showrooms.

McInnes Heads Chemical Salesmen

James J. McInnes, Jr., Commercial Solvents Corp., New York, has been elected president of the Salesmen's Association of the American Chemical

JAMES J. McINNES, JR.

Industry for the coming year. James E. Ferris, Niagara Alkali Co., is the new vice-president, J. Robert Fisher, Fisher Chemical Co., is treasurer and William C. Harmon, Calco Division of American Cyanamid Co., is secretary. Members of the executive committee for 1946-1948, recently elected, are Robert B. Magnus, of Magnus, Mabee & Reynard, Inc., and Paul W. Hiller, Innis, Speiden & Co.

Owens-Illinois Advances McNaull

Robert D. McNaull was appointed manager of the prescription ware department of Owens-Illinois Glass Co., Toledo, O., effective Dec. 1, it was announced recently by the company. Mr. McNaull, who served as a naval officer for about three and one-half years, joined the department in 1937. He succeeds Lt. C. J. Kiger, USNR, who is currently serving in the Navy, and who will assume new duties when he returns to civilian life.

Expand C-P-P Berkeley Plant

A reinforced concrete structure, 105 feet square, will be added to the factory building of Colgate-Palmolive-Peet Co., at 810 Carelton St., Berkeley, Calif., it was learned recently. A contract for the work, totaling $400,000, has been awarded to Austin Co., Berkeley. Another contract to Austin Co. for construction of a cooling tower on the existing C-P-P plant site amounting to $50,000 was also signed recently.

J. C. Schwartz Leaves Lambert

J. Casper Schwartz has resigned as assistant superintendent of Lambert Pharmacal Co., St. Louis, to become a consultant on cosmetics, perfumes and essential oils, it was learned recently. For the past eleven years, Mr. Schwartz has workd in the cosmetic and perfume industry. Before joining Lambert, for whom he will continue as a consultant, he was chief chemist for Godefroy Mfg. Co. for five years. Prior to that he was general manager of production and personnel for Carlova, Inc., and Lander Co., St. Louis. Mr. Schwartz was graduated from Washington University, St. Louis, with a B.S. degree in Chemical Engineering.

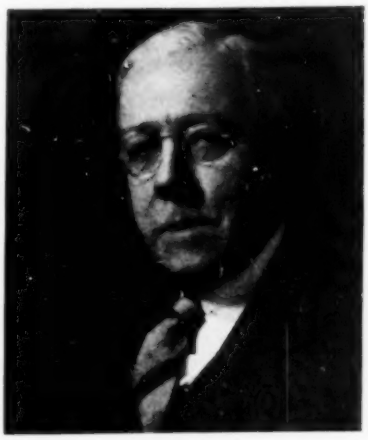
Seidler Rejoins Ampion

M/Sgt. Albert D. Seidler, of the U. S. Army, formerly associated with Ampion Corp., Long Island City, returned from England on the *Queen Mary*, after spending two years in the European Theatre of Operations, it was announced recently by the company. Presently on furlough, he will again take up his duties as New England sales manager of the company when he receives his discharge.

B. Delacour Beamish, formerly administrative vice-president, has just been elected president, director and a member of the executive committee of National Can Corp., New York. Arthur G. Hopkins, National Can Corp., vice-president, has also been elected to the board of directors.

Ralph E. Dorland Heads SOCMA

Ralph E. Dorland, manager of the New York office of Dow Chemical Co., was elected president of the Synthetic Organic Chemical Manufacturers Association at the annual meeting held December 11 in New York. He succeeds August Merz who has held office continuously since 1926. Dr. Elvin H. Kilheffer of E. I. du Pont de Nemours & Co., Wilmington, was elected first vice-president, Dr. Eric C. Kunz of Givaudan-Delawanna, Inc., New York, 2nd vice-president, and C. M. Richter of the Pharma Chemical Corp., New York, treasurer. Charles A. Mace continues as secretary.



RALPH E. DORLAND

Dorland Heads Board of Trade

The following officers were elected by the New York Board of Trade at a special meeting of the board of directors at a luncheon meeting at the Hotel Pennsylvania, New York, Dec. 20: president, Ralph E. Dorland, Dow Chemical Co.; first vice-president, John B. Glenn, Pan American Trust Co.; vice-presidents, Herman L. Brooks, Coty, Inc.; Richard V. Goodwin, Fireman's Fund Indemnity Co.; Warren L. Baker, Socony-Vacuum Co.; treasurer, Harry J. Carpenter, Guarantee Trust Co., and assistant treasurer, M. L. Gitelson, Richard Kulze.

Hylo Co. Moves in Houston

Hylo Co., Houston, Tex., have moved from 300 San Jacinto Bank Bldg. to 703 Scanlan Bldg., the company announced last month.

Erlen Soap to Build

Erlen Soap & Chemical Co., Burbank, Calif., were reported recently to be planning the erection of a new factory and office building on Flower St. that would cost around $35,000.

Soap Patent Available

The availability to citizens of the United States of patent No. 2,342,786, covering a bar laundry soap that is reported to have good lathering properties in hard water was announced recently by the Alien Property Custodian. The patent is available on a royalty-free, non-exclusive basis on the payment of a $15 administrative fee. The soap is said to contain alkali metal tripolyphosphate and the patent was recently issued to the APC on the basis of an application of two German nationals.

J. B. Williams Co., Glastonbury, Conn., have adopted a new "Tenite" plastic container for Williams shaving sticks. The container is a shiny red, fitted with a white screw-type base. Molded by Worcester Molded Plastics Co. "Tenite" is a product of Tennessee Eastman Corp., of Kingsport, Tenn.

Ansul Chemical Elects Hood

Robert C. Hood, formerly a lieutenant in the U. S. Coast Guard, was elected secretary of Ansul Chemical Co., Marinette, Wis., at the firm's annual meeting of the board of directors, Dec. 10, it was learned recently. While in the Coast Guard Mr. Hood saw action in the Pacific on a combat cargo ship. Other officers reelected were H. V. Higley, president; F. J. Hood, vice-president, J. F. Asell, treasurer, and Mrs. F. G. Hood, chairman of the board.

Chi. Chem. Exposition Date Set

The National Chemical Exposition will be held Sept. 10-14, at the Chicago Coliseum, Chicago, according to an announcement made late in December by Dr. H. E. Robinson, assistant chief chemist of Swift & Co., who is chairman of the Exposition Committee of the Chicago Section of the American Chemical Society, sponsor of the event.

Rheem Appoints N.E., N. Y. Rep.

The appointment of G. Wesley Gates as container sales manager in New England and upper New York State for Rheem Manufacturing Co., New York, was announced last month. Mr. Gates comes to his new position after three years experience with the company in the military sales department in Washington, D. C. Prior to joining Rheem in 1942 he was with Hershey Chocolate Corp. for nine years.

Solvay Building New Laboratory

Solvay Process Co., a subsidiary of Allied Chemical & Dye Corp., announced last month that it will begin construction of a new research laboratory at Syracuse, N. Y., shortly. The new laboratory will be located within the present plant site at Syracuse and will house the research organization of the alkali division of Solvay. The company also announced plans to expand its research program and to increase its research organization as soon as the shortage of trained research workers eases up.

New Reilly Tar Product

Reilly Tar & Chemical Corp., Indianapolis, recently announced an aluminum coating that combines an attractive appearance and corrosion resisting properties of coal tar to metal surfaces to which it may be applied. The coating can be either brushed or sprayed. It can be used on other than metal surfaces and is furnished mixed and ready for application in one and five gallon cans and 55 gallon drums.

Java Fighting Blocks Exports

The soap industry will be affected by the fighting in Java between the Indonesians, Dutch and British, according to a statement issued recently by R. M. Stevenson, sales manager of Givaudan-Delawanna, Inc., New York. Java, the largest producer of citronella oil, which is widely used as such in the soap industry, and as a raw material in the manufacture of geraniol, hydroxycitronellal, menthol and other aromatic chemical derivatives, is not shipping its many exportables because of the political unrest, Mr. Stevenson declared. It was thought that following V-J Day products would soon be arriving in the United States from Java, but because of the fighting there shipments have been delayed and will continue to be for some time. The use of citronella and its derivatives must be deferred until the situation in the Dutch East Indies returns to normal, Mr. Stevenson stated.

Carlea Sales in New Quarters

Carlea Sales Co., sanitary maintenance products manufacturers, recently announced that they had moved to new and larger quarters at 516 W. Franklin St., Baltimore 1. The firm was formerly located at 2223 E. Baltimore St.

"Well, *then, suppose* you *set the price*"

THIS hapless mug dickering for the Brooklyn Bridge, isn't, we'd have you know, a Crown customer. Crown customers are smart. That's why they buy from Crown. They realize that Crown's fair price policy is highly advantageous . . . They know that all comers to Crown are treated alike, and treated right! Copy book stuff? Of course! Crown customers have found it a mighty profitable angle. We have and so will you.

CROWN

FINE METAL CONTAINERS

CROWN CAN COMPANY • PHILADELPHIA • Division Crown Cork & Seal Company, Inc. • Baltimore, Maryland

BIDS AND AWARDS

Powdered Hand Soap Award

In a recent opening for miscellaneous supplies by the Philadelphia Navy Yard, Philadelphia, National Milling & Chemical Co., Philadelphia, submitted the low bid of 8.75 cents a pound, which was accepted, on 3,000 pounds of powdered hand soap. Among the other bidders in the opening were: Crystal Soap & Chemical Co., Philadelphia, 10 cents; G. H. Packwood Manufacturing Co., St. Louis, 12.69 cents; West Disinfecting Co., Philadelphia, 19 cents; A. B. Wrisley Co., New York, 12 cents and Sugar Beet Products Saginaw, Mich., 15.8 cents.

G.P.O. Liquid Soap Bids

Among the bidders on 4,409 gallons of liquid soap in a recent opening for miscellaneous supplies by the U. S. Government Printing Office, Washington, D. C., were: Crystal Soap & Chemical Co., Philadelphia, 31 cents a gallon; Harley Soap Co., Philadelphia, 34 cents; Trio Chemical Works, Brooklyn, 31.5 cents; Ft. Washington Chemical Products Co., New York, 33 cents and R. M. Hollingshead Corp., Camden, N. J., 43 cents.

Treasury Shave Soap Bids

In a recent opening for miscellaneous supplies by the Procurement Division of the U. S. Treasury Department, Washington, D. C., the following bids were recived on 800 pounds of shaving soap: J. B. Williams Co., Glastonbury, Conn., 35.28 cents a pound; Unity Sanitary Supply Co., New York, 32 cents; Wm. Messer Corp,. New York, 32.7 cents and N. Brittingham & Sons, Philadelphia, 34.9 cents.

Justice Dept. Carnauba Bids

The following bids were entered on 176½ pounds of carnauba wax in a recent opening for miscellaneous supplies by the U. S. Department of Justice, Springfield, Mo.; William Diehl & Co., New York, 45c; also, No. 3 North Country carnauba, $1.30 a pound for Nov. and Dec. shipments; $1.20 for Mar. to May shipments; also chalky grade, $1.20 a pound for Nov. and Dec. shipments, and $1.14 a pound for Feb. and Mar. shipments; Robinson Plumbing Supply Co., St. Paul, Minn., $1.80; and Frank B. Ross Co., Hoboken, N. J., $1.35.

Treasury Metal Polish Bids

Among the bidders on 144 pounds of metal polish in a recent opening for miscellaneous supplies by the Procurement Division of the U. S. Treasury Department, Washington, D. C., were: A. L. Cahn & Sons, New York, 21.5c; Imperial Products Co., Philadelphia, 16c; Oil Specialties & Refining Co., Brooklyn, 16.5c; International Metal Polish Co., Indianapolis, 9.5c; Wm. Messer Corp., New York, 22.4c a pound; Solarine Co., Baltimore, 20c a pound; Unity Sanitary Supply Co., New York, 24c a pound and Warder Chemical Co., Brooklyn, 15c a pound.

P. O. Auto Soap Bids

The following bids were received on three items of automobile soap, item 1 being 64 containers of approximately 50 pounds each, item 2 being 18 half-barrels, 250 pounds each, and item 3 being 50 barrels of 500 pounds each, in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C.; Harley Soap Co., Philadelphia, item 1, 6.9 cents, item 2, 6.2 cents and item 3, 5.9 cents; Turco Products Co., Los Angeles, item 1, 8.95 cents; item 2, 8.85 cents, and item 3, 8.75 cents; Crystal Soap & Chemical Co., Philadelphia, item 1, 11 cents, item 2, 9.5 cents, and item 3, 9 cents; Cole Laboratories, Long Island City, item 1, 8.5 cents; item 2, 11.5 cents, and item 3, 11.5 cents; Peck's Products Co., St. Louis, item 1, 8.5 cents, item 2, 7 cents and item 3, 6.5 cents; Fisher Industries, Cincinnati, item 1, 6.9 cents, item 2, 6.5 cents and item 3, 5.95 cents; R. M. Hollingshead Corp., Camden, N. J., item 1, 14 cents, item 2, 13 cents and item 3, 12 cents; Tesco Chemical Corp., Atlanta, item 1, 14 cents, item 2, 13 cents and item 3, 12 cents; Davies Young Soap Co., Dayton, item 1, 8 cents, item 2, 7.25 cents and item 3, 7 cents; and Motor State Oil & Grease Co., Jackson, Mich., item 1, 6.9 cents, item 2, 7 cents and item 3, 6.1 cents.

Hard, White Soap Bids

In a recent opening for miscellaneous supplies by the Procurement Division of the Treasury Department, Washington, D. C., the following bids were received on 900 pounds of hard, white soap: Industrial Distributors, New York, 65 cents a pounds on 2½ ounce cakes, packed 17 cakes to a box; and Conti Products Corp., Brooklyn, $21.50 a gross for 3¾ ounce cakes, packed six dozen cakes or a gross, and an alternate bid of $22 a gross, packed 15 cakes to a box.

Veterans Adm. Wax, Polish Bids

In a recent opening for miscellaneous supplies by the procurement division of the Veterans Administration, Washington, D. C., the following bids were announced on 17,000 pounds of metal polish: Wonder Chemical Co., Brooklyn, 6.95c a pound; R. M. Hollingshead Corp., Camden, N. J., 9.8c; Oil Specialties & Refining Co., Brooklyn, 12.9c and Unity Sanitary Supply Co., New York, 19c. In a similar opening by the Veterans Administration, Washington, D. C., these bids were received in an opening for 1,500 gallons of water-emulsion floor wax: Buckingham Wax Co., Long Island City, $1.07 a gallon; Windsor Wax Co., Hoboken, N. J., $1.82 and McAlwer Mfg. Co., Rochester, Minn., $1.21.

FWA Wax Award to Bri-Test

Bri-Test Products Corp., Newark, N. J., received the award on 1,100 gallons of floor wax with a bid of $858 in a recent opening for miscellaneous supplies by the Office of Buildings Management, Public Buildings Administration, Federal Works Agency, Washington, D. C.

NEW TRADE MARKS

The following trade-marks were published in the December issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Mark Applications

BLUEBONNET — This in lower case, bold letters in the form of an arc above the drawing of a small girl in a bonnet for cleaning fluid and typewriter platen surface cleaner. Filed May 2, 1945 by System Service Co., Paterson, N.J. Claims use since Nov., 1944.

QUICKEE—This in upper case, reverse letters on a ruled disc superimposed upon a screened rectangular background for hand cleaning composition. Filed May 29, 1945 by Tudor Products, Inc., New York. Claims use since Oct. 2, 1944.

WITEY DITEY — This in upper case, extra bold, black letters for diaper cleaning preparation. Filed June 23, 1945 by Allied Salt & Chemical Co., Boston. Claims use since May 3, 1944.

COMFORTOL — This in upper case, bold, stencil letters for insecticidal cattle spray. Filed Feb. 24, 1945 by L. Sonneborn Sons, Inc., New York. Claims use since 1920.

TRYODERM — This in upper medium case, letters for bactericidal ointment. Filed June 9, 1945 by Sharp & Dohme, Inc., Philadelphia. Claims use since May 22, 1945.

YES' 'TWILL—This in upper and lower case, extra bold, black letters for general purpose household cleaning powder. Filed June 25, 1945 by 'Twill Laboratories, Wilmington, N.C. Claims use since May, 1937.

MIRANOL — This in upper case, open initials for synthetic detergents. Filed July 12, 1945 by Miranol Chemical Co., Irvington, N.J. Claims use since June, 1941.

MIRAPON — This in upper case, open, initials for synthetic detergents. Filed July 12, 1945 by Miranol Chemical Co., Irvington, N.J. Claims use since June, 1941.

CRESSA — This in upper case, extra black, bold letters for hand cleaner. Filed July 23, 1945 by Pawl-Rae Products Co., South Bend., Ind. Claims use since Feb. 9, 1945.

HEXSOLIS — This in upper case, bold letters for disinfectant and antiseptic. Filed Dec. 23, 1944 by Koppers Co., Kearny, N.J. Claims use since Sept., 1930.

MICRO NU-COP — This in upper case, bold letters for neutral tri-based copper sulfate used to control various agricultural diseases. Filed Feb. 1, 1945 by Faesy & Besthoff, Inc. New York. Claims use since Dec. 12, 1944.

HERIBEX—This in upper case, bold letters for solution of mildewproofing and mothproofing textiles, etc. Filed Apr. 6, 1945 by Herbert J. Heribert, New York. Claims use since Jan. 12, 1945.

LUPLEX—This in upper case, bold letters for solution to be used as coating for textiles and for plastics for mildewproofing and mothproofing. Filed Apr. 11, 1945 by Herbert J. Heribert, New York. Claims use since Sept. 1, 1944.

BEAU BRUMMEL — This in upper case, extra bold, black letters for shampoo. Filed Apr. 24, 1945 by Purex Products, Inc., Baltimore. Claims use since June 7, 1944.

PETAL GARLAND — This in upper and lower case, bold, script letters for hair shampoo. Filed June 26, 1945 by Primrose House, Inc., New York. Claims use since June 5, 1945.

KIL-O-SAN — This in upper case, bold letters for insecticides, and fly and insect spray. Filed July 2, 1945 by Smith Manufacturing Co., Utica, N. Y. Claims use since Jan. 6, 1945.

75 DUST—This in upper case, extra bold, black letters for mixture of ingredients for making insecticides and fungicides. Filed July 18, 1945 by Cooperative Seed and Farm Supply Service, Inc., Richmond, Va. Claims use since Mar. 2, 1942.

AER-O-CIDE — This in upper and lower case, bold, script letters for air disinfectants. Filed July 23, 1945 by George W. Fleischman, Long Beach, Calif. Claims use since June 23, 1945.

EGB 572—This in upper case, bold, script letters for shampoo. Filed July 27, 1945 by Gold Cap Chemical Co., Sommerville, Mass. Claims use since July 21, 1945.

NOB HILL — This in upper case, open letters for shampoo. Filed Aug. 1, 1945 by Monroe Distributing Co., Los Angeles. Claims use since June 11, 1945.

SAN-I-CIDE — This in upper case, bold letters for cleanser and detergent for cleaning glassware and dishes. Filed Jan. 15, 1945 by H. D. Lee Co., Kansas City, Mo. Claims use since Oct. 27, 1942.

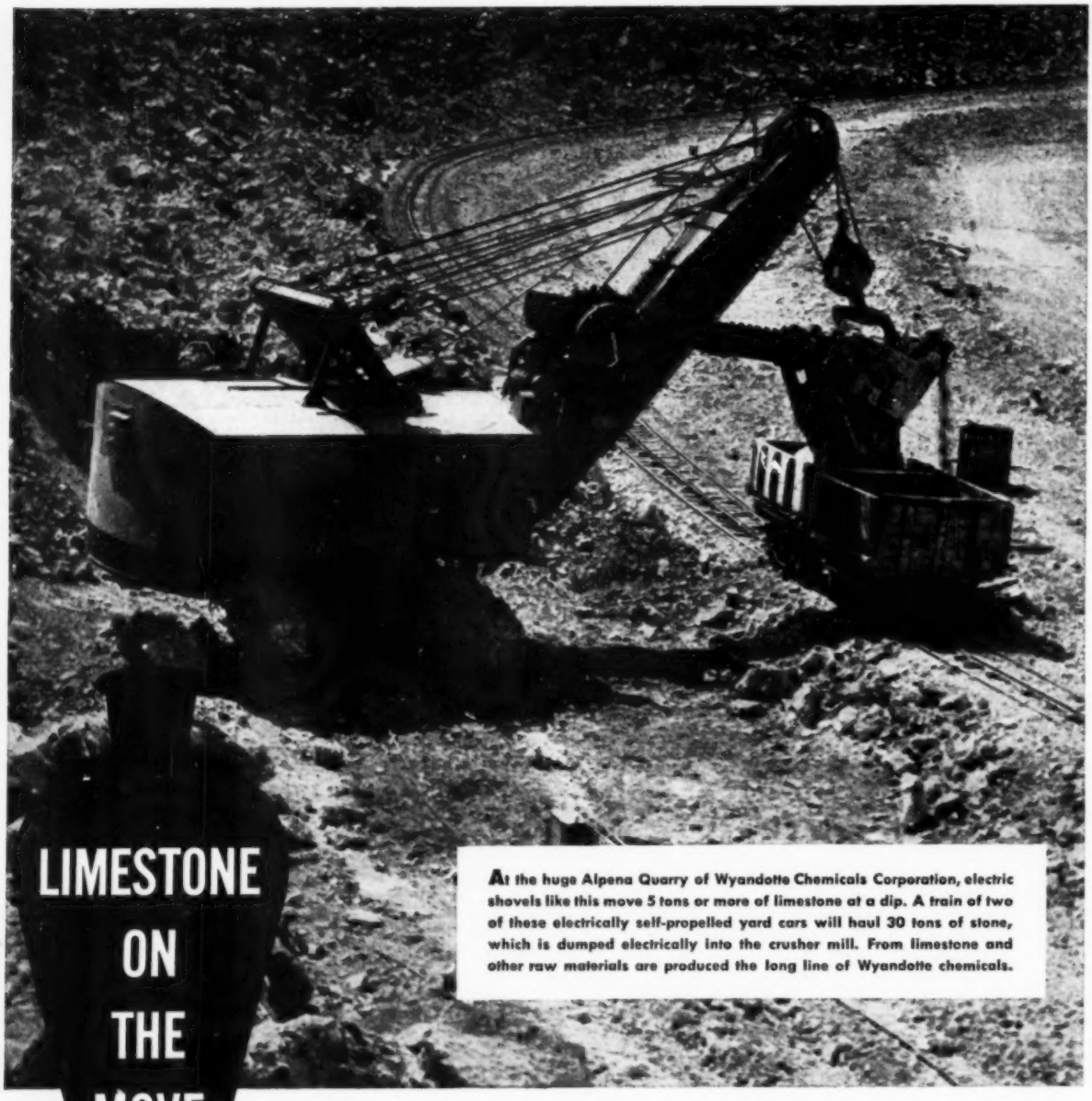
ADD A LITTLE AD — This in upper and lower case, open letters for detergent preparation. Filed Feb. 14, 1945 by F. E. Everson, New York. Claims use since Jan. 8, 1943.

CHARLES OF THE RITZ — This in upper and lower, extra bold, black letters for toilet soaps. Filed July 13, 1945 by Charles of the Ritz, Inc., New York. Claims use since May, 1943.

WHIZ — This in upper and lower case reverse letters on a reverse disc having several circles around it for insect spray. Filed July 26, 1944 by R. M. Hollingshead Corp., Camden, N.J. Claims use since Apr. 6, 1944.

ALKRESOL — This in upper and lower case, extra bold, black letters for antiseptic and disinfectant. Filed Aug. 10, 1944 by William Warner & Co., Wilmington, Del. Claims use since April 29, 1933.

NAPHTHALENE MOTH NUGGETS—This in upper and lower case and upper case reverse letters superimposed on a drawing of a moth for insecticides and naphthalene. Filed



LIMESTONE ON THE MOVE

At the huge Alpena Quarry of Wyandotte Chemicals Corporation, electric shovels like this move 5 tons or more of limestone at a dip. A train of two of these electrically self-propelled yard cars will haul 30 tons of stone, which is dumped electrically into the crusher mill. From limestone and other raw materials are produced the long line of Wyandotte chemicals.

WYANDOTTE CHEMICALS CORPORATION

ONE OF THE WORLD'S GREAT PRODUCERS OF CHEMICALS

SODA ASH	CALCIUM CHLORIDE	AROMATIC INTERMEDIATES
CAUSTIC SODA	CHLORINE	DRY ICE
BICARBONATE OF SODA	HYDROGEN	Other Organic and Inorganic Chemicals
CALCIUM CARBONATE	SODIUM ZINCATES	

WYANDOTTE CHEMICALS CORPORATION
MICHIGAN ALKALI DIVISION • WYANDOTTE, MICHIGAN

Wyandotte
REG. U. S. PAT. OFF.

Jan. 8, 1944 by Koppers Co., Kearny, N.J. Claims use since 1942.

NAT-MAR-CO — This in upper and lower case, bold letters, within a decorative border for cleaning compound. Filed May 24, 1945 by National Marking Machine Co., Cincinnati. Claims use since Jan. 1, 1921.

ARMSTRONG'S — This in upper and lower case, black, bold, italic letters for cleaning preparation in granular, liquid and other forms. Filed Aug. 3, 1945 by Armstrong Cork Co., Manheim Township, Pa. Claims use since Mar. 27, 1935.

LAVENDINE — This in upper case, extra bold, black letters for scented insecticide. Filed Dec. 26, 1944 by Koppers Co., Kearny, N.J. Claims use since Dec., 1918.

KINRECO—This in upper case, bold letters within an elongated diamond background for preparation for use in treatment of athlete's foot. Filed Mar. 12, 1945 by Kinyon Remedy Co., Topeka, Kans. Claims use since 1920.

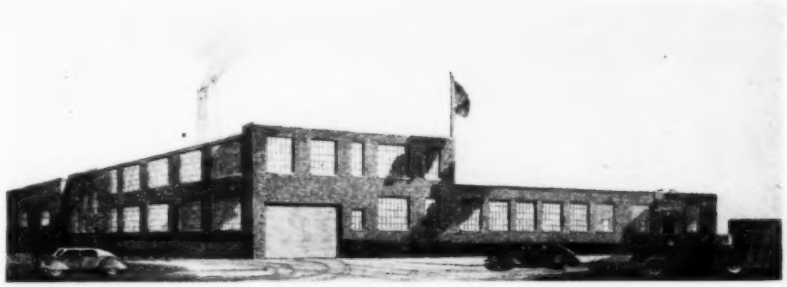
BECO—This in upper case reverse letters on a triangular solid reverse background for tincture of green soap and shampoo. Filed June 25, 1945 by Beco Laboratories, St. Paul, Minn. Claims use since May, 1936.

LUCKY TIGER — This in upper case, bold letters above the fanciful drawing of a woman stroking the cheek of a tiger for shampoo. Filed July 13, 1945 by Lucky Tiger Manufacturing Co., Kansas City, Mo. Claims use since Aug. 1, 1917.

B-CHLORO—This in upper and lower case, bold letters for disinfectant and germicidal treatment of drinking water for chickens and turkeys. Filed Aug. 5, 1945 by Beebe Laboratories, Inc., St. Paul, Minn. Claims use since Jan. 25, 1945.

ARMSTRONG'S — This in upper and lower case, extra bold, black, italic letters for liquid polishing wax. Filed Aug. 3, 1945 by Armstrong Cork Co., Manheim Township, Pa. Claims use since Nov. 2, 1925.

Schultz Laboratories, Boone, Ia., are currently mailing four-ounce sample envelopes of their "Ink-Solv '30'" hand cleaner which is recommended for removing several types of printing ink.



Pioneer Mfg. Add to Plant

Pioneer Manufacturing Co., Cleveland, makers of sanitary products, paints and varnishes, are building a new addition to their plant which will add 20,000 square feet of floor space. The new addition, pictured above, will be of steel and brick construction and will cost $125,000. It will allow for expansion in Pioneer's production of insecticides, deodorants, cleaning and polishing products. Pioneer Manufacturing Co. was organized in 1905. The Wm. Bulger Varnish Co. was acquired in 1919, the Ohio Duster Co. in 1933 and The Kill Odor Co. in 1938. Products of the firm are marketed nationally. Officers are Otto C. Wehe, president since organization, R. R. Richardson, vice-president, R. F. Heran, treasurer, and Walter Myers, Jr., secretary.

Soap Makers Meet in N. Y.

Soap makers were scheduled to attend a series of meetings at the Hotel Roosevelt, New York, January 10 and 11. Two meetings were scheduled for the first day, a meeting of the Potash Soap Division of the Association of American Soap and Glycerine Producers, and a second meeting which small soap makers were invited to attend to discuss special problems that confront the smaller concerns in the industry. The Potash Soap meeting was scheduled to continue over to the morning of January 11, with the possibility that the other meeting might also be prolonged if desired by those in attendance.

The annual meeting of the Association of American Soap and Glycerine Producers was to begin at noon on January 11 and to continue after lunch with a series of talks by association officers, government officials and others. The association was scheduled to elect directors and four new nominations were made as follows: T. E. Allen, Par Soap Co., Oakland, Calif.; H. Dock, M. Werk Co., Cincinnati; C. G. Fox, Fels & Co., Philadelphia; and H. Kranich, Kranich Soap Co., Brooklyn.

Directors renominated include the following:

H. D. Banta, Iowa Soap Co., Burlington, Iowa; H. F. Bernhard, Pioneer Soap Co., San Francisco; C. E. Bertolet, Laurel Soap Manufacturing Co., Philadelphia; F. A. Countway, Lever Brothers, Cambridge; N. S. Dahl, John T. Stanley Co., New York; R. R. Deupree, The Procter & Gamble Co., Cincinnati; D. M. Flick, Armour and Co., Chicago; E. B. Hurlburt, The J. B. Williams Co., Glastonbury, Conn.; E. H. Little, Colgate-Palmolive-Peet Co.; Jersey City; E. A. Moss, Swift & Co., Chicago; G. A. Wrisley, Allen B. Wrisley Co., Chicago.

Chicago Soap Meeting

A second meeting of small soap manufacturers has been called for Jan. 15, at the Stevens Hotel, Chicago. Arrangements for the meeting are being made by E. O. Gillam, Gillam Soap Works, Fort Worth.

Two Join Affiliated Products

Two executive appointments were announced last month by Affiliated Products, Inc., the cosmetic division of American Home Products Corp., New York. Regina Tierney, who has been with the company for the past year and one-half studying packaging and new products has been appointed advertising director, and August Sands, purchasing agent for Richard Hudnut, New York has been named production manager.

4 Hooker Metallic Chlorides of High Purity...

These four Hooker Chemicals are all classified as metallic chlorides, but they can't be grouped under one use or industry heading. Each one, a versatile tool for chemists, may be used in many different processes and in many different reactions. Whether you are looking for catalysts or highly active reagents; whether you are in the petroleum, the textile, pharmaceutical or even water supply field, it will pay you to see if any of these chemicals can help you. If the brief descriptions of these chemicals, their properties and uses whets your curiosity for more information, Technical Data sheets supplementing this data and including Hooker specifications of purity will be sent you when requested on your letterhead.

Aluminum Chloride, Anhydrous, $AlCl_3$ is principally used as a catalyst for Friedel-Crafts synthesis, polymerization, isomerization, halogenation. These reactions are important in the production of high octane gasoline, lubricants, synthetic rubber, dyes, pharmaceuticals, photographic chemicals, etc. Hooker Aluminum Chloride is a grayish crystalline solid which fumes in moist air. It is available in three sizes. It is a particularly pure product containing a minimum by weight of 99% aluminum chloride and a maximum iron content of .05%.

Antimony Trichloride, Anhydrous, $SbCl_3$ is used in the petroleum industry as a catalyst (with $AlCl_3$) to convert normal butane to isobutane and in various hydrocarbon oil treatments. It is also used as a catalyst in organic synthesis; in the manufacture of dyes and pharmaceuticals; preparation of antimony salts; as a mordant in calico printing; in antimony plating; in bronzing iron and other metal treating processes. In a muriatic acid solution it forms a coating of antimony on iron retarding corrosion. Hooker Antimony Trichloride, Anhydrous, is a yellowish crystalline solid of 99% minimum purity. Iron and arsenic are present in a maximum amount of 1% and it is entirely free from lead.

Arsenic Trichloride, Anhydrous, $AsCl_3$ is used in the manufacture of synthetic organic chemicals containing arsenic for insecticides, war and police gases. The Hooker product is a clear, colorless to pale yellow liquid, containing 99.5% minimum, arsenic trichloride.

Ferric Chloride Solution, $FeCl_3$ is used in sewage treatment, in photo engraving, for photogravure and heliogravure, as mordant in dyeing and printing textiles, for the manufacture of other iron salts, paint pigments, iron pharmaceuticals, as an oxidizing agent in making dyes, as a general disinfectant. It is a dark orange-red syrupy liquid with a Ferric Chloride content of 40 to 45% and a ferrous chloride content of .20% maximum.

Help from Hooker Technical Staff

An important function of the Hooker Technical Staff is to cooperate with users and prospective users of Hooker Chemicals. On any of your problems involving chemicals, let our Technical Staff help you in determining where Hooker Chemicals can provide the answer.

HOOKER RESEARCH ***Presents***

LAURYL PYRIDINIUM CHLORIDE

$C_5H_5N(C_{12.6}H_{26.2})Cl$

This recently developed product of the Hooker Laboratories has already made its mark in many different applications. The textile field has put Lauryl Pyridinium Chloride to work cleaning textile fibers, in water soluble lubricants, wetting agent in processing, color modifier in dyeing and as a cationic detergent, dispersing and wetting agent in rayon manufacture (Ref. U. S. Pat. No. 2,125,031). Like other quaternary ammonium compounds this chemical has good germicidal properties and is quite potent against both Gram-positive and Gram-negative micro-organisms. For the pharmaceutical industry, this chemical has many interesting possibilities in the preparation of antiseptic soaps, germicides, disinfectants, fungicides, insecticides, etc.

Among other suggested uses for this compound are the manufacture of foam resistant compounds, leveling agent in polishes and waxes; lubricant for plastic molds, additive to water to increase solubility of many organic compounds. Technical Data Sheet 745 gives physical and chemical characteristics and other information. A copy will be sent you on request.

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Caustic Soda	**Muriatic Acid**	**Sodium Sulfide**
Paradichlorbenzene	**Chlorine**	**Sodium Sulfhydrate**

8351

RAW MATERIAL MARKETS

As of January 3, 1946

IMPORTS are the important factor in determining whether or not demand for inedible fats and oils will be met and how much longer allocation control over supplies of fats and oils is likely to continue during the coming year. Other factors affecting those two situations are the size of the domestic crop of oil-bearing materials and exports. These views are contained in a recent discussion of the oils and fats outlook by Charles E. Lund, chief, fats and oils unit, Bureau of Foreign and Domestic Commerce, writing in *Domestic Commerce.*

An early forecast indicates that domestic output of oils and fats during the 1945-46 season, on the basis of present information, will amount to 9,500,000,000 pounds, about the same as the expected 1944-45 yields and 1,600,000,000 pounds less than the record 1943-44 crop, according to the Lund report. As against a 1945-46 production of 9,500,000,000 pounds Mr. Lund's report forecasts the demand for inedible uses of 3,800,000,000 pounds and 6,800,000,000 pounds for edible purposes, totaling 10,600,000,000 pounds. The billion pound shortage of inedibles — edibles appear in balanced supply — can, it is believed, be made up by imports. In the years before the war imports came to almost two billion pounds annually; recently the figure averaged around one billion pounds. However, should the domestic production reach the figure forecast and should imports come to around a billion pounds, there are still exports to European and other countries to be reckoned with. However, the report states, unless imports are expanded the overall picture may require the continuance of control orders WFO 42 and WFO 29. The greater our imports the less difficulty will be experienced in meeting commitments abroad. The U. S. was active in the work of the Fats and Oils Subcommittee of the Combined Food Board, which has had as its purpose the equitable distribution of available supplies. The activities and decisions of the Board are of particular importance now when demands are greater than available world supplies can meet. The situation is expected to improve by late 1946 when new crops harvested

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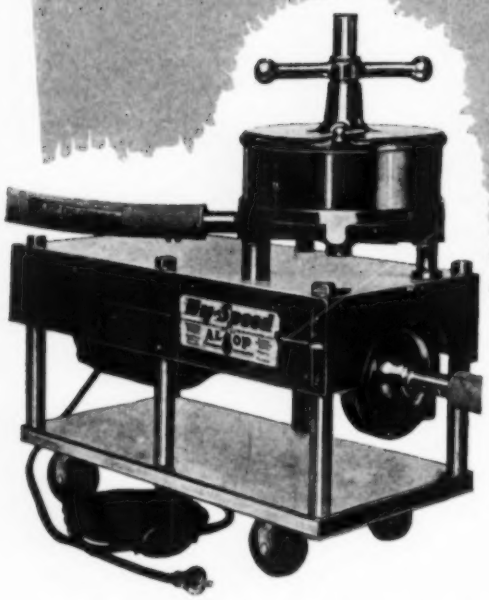

IN THE SCRAMBLE for more production you need faster and better filtration and if you can get it with less labor and lower production costs, so much the better. Well, Alsop "Sealed-Disc" Filters will do all that and more too.

In addition to its filtering efficiency the "Sealed-Disc" Filter offers these values to its users.

1. Completely enclosed, air-tight unit, eliminating loss through leakage or even by evaporation
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3. Because of the simplicity of design, these Filters are available made of *Stainless Steel, Monel Metal,* and other acid and alkaline resisting materials at *extremely low cost.*
4. Filter discs easily changed when clogged with dirt or when products handled are changed. A very few minutes does the job.
5. Sizes, with or without pumps, range from 1 GPM to thousands of gallons per hour.

If you have *any* filtration or re-filtration problem, investigate the Alsop "Sealed-Disc" Filter. It has much to offer you.

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This unique filter disc material used in the Alsop "Sealed-Disc" Filter guarantees clean, clear, sediment-free solution. The "Layer-on-Layer" construction stops the solids, even those high on the micron scale.

Discs can be cut to fit *any* filter or the material can be purchased in sheets.

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in the U. S., abroad and in areas where there are usually surpluses are more nearly normal.

Imports of all oils and fats for the first eight months of 1945 amounted to 684 million pounds, on an oil equivalent basis, as compared with 726 million pounds for the 1944 period. Exports, on the other hand, showed a sharper decline dropping to 670 million pounds for the January-August period in 1945, as against one billion pounds for the comparable 1944 period. Export shipments were expected to continue low for the remainder of 1945, particularly as a result of the ending of lend-lease shipments.

Although copra is said to be coming from the Philippines — with 3,300 tons afloat destined for the U. S. about a month ago — only about 300,000 tons of copra are expected to come out of the Islands in 1946. This is only about one-half the amount which would be had under normal conditions.

Another of the soap maker's raw materials that is still in a rather tight supply position is caustic soda and soda ash, it was learned here recently. Both are finding heavy demand and use in a variety of industries and it is now indicated that it will be some time before the supply will keep up with demand. As a result, a gradual price rise has been noted on caustic.

Cassia oil, the first since the war, is reported afloat and on its way to the U. S. from China. The quantity being shipped was not disclosed. Another essential oil development is a report that Brazil has passed a 40 per cent sales tax on essential oils, which will have the effect of raising prices on oils brought in from that country.

Along the insecticide front it was learned that the Japanese acreage of pyrethrum in 1945 was just about half of what it was during the 1930-35 average period. As a result, it is thought no pyrethrum will be available for export. In addition, there are no stocks on hand for possible shipment. Before the war the U. S. bought about two-thirds of Japan's annual pyrethrum exports.

The public purchase program for the importation of rotenone and rotenone bearing materials will be terminated Mar. 31, and the trade restored to private importers the Civilian Production Administration announced in December. The public purchase of rotenone was instituted during the war to insure maximum supplies from the Western Hemisphere, following the loss of Far Eastern sources. Peru was the main source for the material in the Western Hemisphere. Under the program imports of rotenone increase each year, it was said.

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Sloan Joins Rene Foster

Frank H. Sloan, formerly of Naugatuck Aromatics, New York, and recently released from the Army Air Force, has become associated with the sales department of Rene Foster Co., 404 Fourth Ave., New York.

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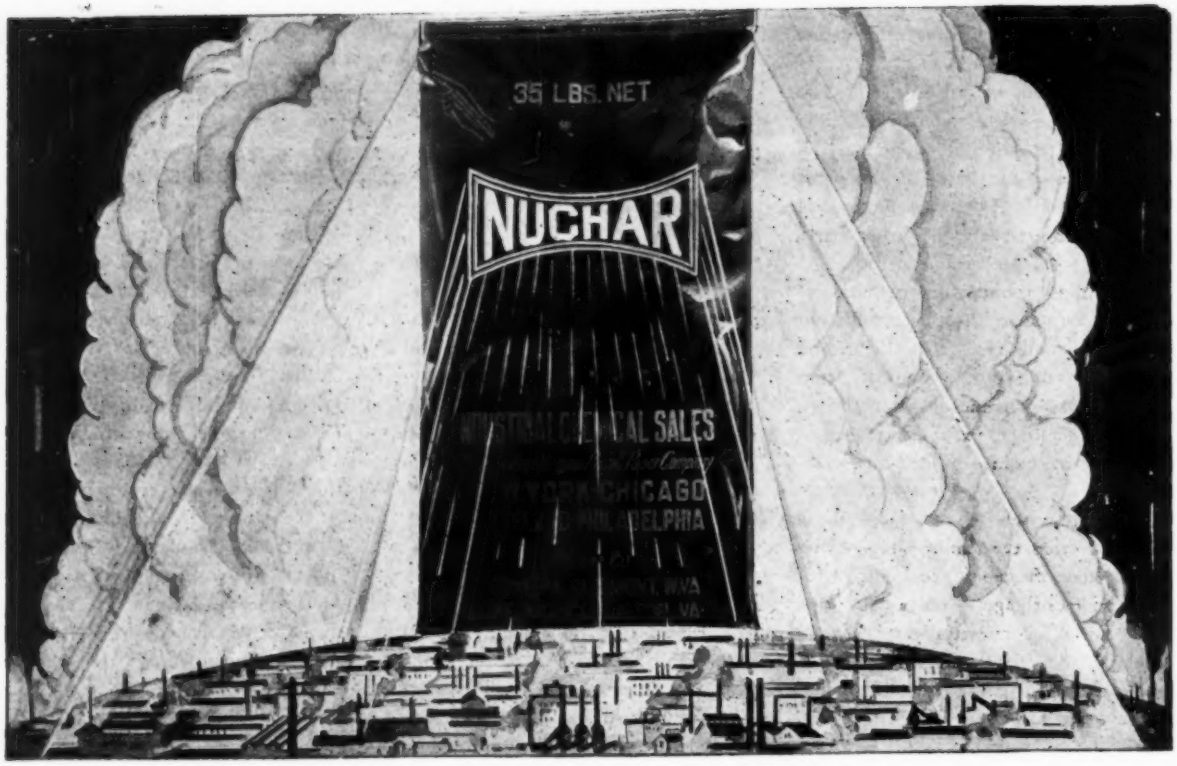
William H. Richman, retired manufacturer of "La France" soap flakes, died in Atlantic City, N. J., December 29.



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Nuchar Activated Carbon is the miracle package of purification. Nuchar has found wide acceptance in the oil and soap industries for the removal of impurities that affect odor, color and taste.

Nuchar Activated Carbon has long been used to remove color and odor from oils to be used for soaps. Small amounts of Nuchar Activated Carbon insure maximum stability of color and odor. Soaps made from stable oils have less tendency to spot, chip or become discolored.

Soap and oil producers are finding many new uses for Nuchar, because they recognize in its application a thoroughly effective method of purification by adsorption.

Your technical staff will find activated carbon a useful tool in your processes. Consult with us regarding the grade of Nuchar best fitted to your needs and we will send you a generous working sample.

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PRODUCTION SECTION

A Review of Continuous Methods

THE continuous processes of fat splitting illustrate the principle of removing the products of the reaction so that they do not slow down the rate by their increasing concentration. They depend on the fact that at high pressures and temperatures, oils and fats are miscible with water, and so the rate of hydrolysis is greatly increased. By countercurrent operation the glycerine is removed from the oil as it is liberated, and so the initial high rate of the reaction is not greatly reduced as saponification proceeds.

The operation is conducted in a tower. Preheated oil is pumped in at the bottom and preheated water at the top. The pressure is of the order of 600 pounds per square inch and the temperature about 250°C. The oil in passing upwards is hydrolyzed by the water coming down. Fatty acids are drawn off from the top of the tower and glycerine sweetwaters from the bottom. Hydrolysis of the oil is practically complete—that is, above 97 per cent with a contact time in the column of about 30 minutes.

Oil Refining

In order to convert to a continuous process it is sometimes necessary to introduce special equipment. An example of this is the continuous method of oil refining by the use of centrifuges. In the unit process of mixing, the votator is a mixer which is used in the continuous treatment of oils and fats. It consists of a jacketed tube with rotating shafts, which renew the particles of oil that contact the cold surface. Calcium chloride brine is circulated through the jacket. It is used in the chilling and plasticising of edible fat, and makes this stage of the process continuous.

The continuous hardening process for oils comes into this category; but here it was also necessary to make some alteration in the operating conditions — namely, the physical condition of the nickel catalyst, before satisfactory equipment could be designed.

Soapmaking

Sometimes one requirement of a process by its very nature confines it to a batch operation, and it is necessary to eliminate this factor before operation can be made continuous. In soapmaking, continuous processes dispense with the salting-out operation of soap boiling, so that glycerine can also be continuously produced. It is no longer necessary to interrupt the concentration of the glycerine sweetwaters in order to remove the salt which has crystallized out. For saponification, oils and alkali are heated to very high temperatures such as 210-290°C., and the soap and glycerine mixture sprayed in a thin stream onto the walls of a chamber, the glycerine and water passing off as vapor, the soap being compacted by conveyors and carried to roll mills. The essential points which allow such high temperatures without discoloration of the oil, are rapid passage through the high-temperature zone, exclusion of air, and accurate proportioning of oil and alkali.

Classification of Processes

Continuous processes have been classified as recycle, concurrent, and countercurrent. An example of a recycle process is the dry distillation of fatty acids, in which the acids are preheated in Dowtherm heat exchangers out of contact with air, and delivered at about 175°C. to a specially designed still where a low pressure of 0.5 inch of mercury is maintained. The acid vapors entering the still are made to effect continuous circulation of some liquid fatty acid material.

A continuous soap crutcher is an example of a continuous unit which operates on the concurrent principle. In one type the soap is delivered by a metering pump, while each of the other ingredients passes through its measuring pump, all of which are driven by a constant speed motor through variable speed transmission. Mixing is achieved by circulation through a pressure regulating valve. The unit is quite flexible in operation, since it allows variation in capacity and in the relative proportions of the ingredients.

Examples of countercurrent processes have already been given. One further is in continuous deodorization plants, where oil is deodorized by passing over plates in a tower at a temperature of 210°C. and 0.25 inch of mercury pressure. The superheated steam is injected at the bottom of the tower. Dowtherm heat exchangers preheat the oil entering the tower. J. L. Boyle. *Manufacturing Chemist 16*, 313-4 (1945).

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An oil- and water-resistant silver-polishing element is made by vulcanizing a mixture of neoprene (2-chloro-1, 3-butadiene), cork, reinforcing fibers, nonscratching mineral filler, mineral oil and minor components. R. M. Hill, to Armstrong Cork Co. U. S. Patent No. 2,378,630.

Shampoo Formulation

SOYBEAN oil is said to be satisfactory for making liquid soap shampoos because of its high iodine number and low content of solid fatty acids. The potassium soap of soybean oil is transparent, has a dark golden color, and is superior to potassium-linseed oil soap. Saponification proceeds easily. Linseed oil is usually admixed with soybean oil. For "summer soap" 50-60 per cent of soybean is used with 50-40 per cent of linseed oil; for "winter soap" 30-35 per cent of soybean is used with 70-65 per cent of linseed oil. To saponify 100 pounds of oil use 40 pounds of a 50°Be. caustic potash lye containing 6 pounds of potassium carbonate. To this water is added until a concentration of 30°Be. is reached.

Jelly and paste shampoos run from 30 to 60 per cent content. For retail sale the lower range is used. The higher percentages are sold mostly in larger units to the beauty shop trade and converters, and are classified as shampoo bases. These are still pastes and are used for making up stock solutions in beauty shops. Such solutions are sometimes made up at 15-20 per cent concentrations for further dilution when used. Some shops make them up at 6-8 per cent soap content, which is generally considered the most satisfactory concentration for general professional use.

Soapless Base

Synthetic detergents such as sodium alkyl sulfates are used for powdered soapless shampoos. One-sixth of an ounce of a 30 per cent grade is normally sufficient for a single package, but for sales psychology, this is usually bulked up to about ½ ounce. Various inert or mildly detergent substances may be added. Suggested additives include sodium pentaborate, dried sodium sulfate, dried powdered Epsom salts, kaolin, and bentonite.

Sodium pentaborate, used as a diluent in soapless shampoos, is a white crystalline powder readily soluble in cold water, giving a slight alkaline solution of 7.95. A 10 per cent aqueous solution of a 1:1 mixture of sodium alkyl sulfate and sodium pentaborate has a pH value of 7.2, thus giving a neutral solution with excellent lathering properties.

Another product of interest is a mixture of sulfated fatty per-alcohols, known as "Persulphosal." This is a free-flowing soluble white powder, practically neutral in solution and unaffected by hard water. In properties it is antiseptic, mildly bleaching, detergent, nonirritant, and compatible with most shampooing ingredients. The mild bleaching action is especially suitable for shampooing blond hair.

Most of the synthetic detergents are suitable for making soapless liquid shampoos. In this the concentration of detergent has been varied from 5 to 30 per cent.

Oil Shampoo

Oil shampoos have a more limited market. An example of such formulation is the following:

	parts by weight
Castor oil, deodorized	60
Castor oil fatty acids	5
Methyl cyclohexanol	0.5
Triethanolamine	2
Perfume	0.5

In conclusion, perfume and a good appearance are both important in shampoos for retail sale. A recessed label printed in alkali-fast inks and with a good waterproof finish is ideal. S. P. Jannaway, *Perfumery & Essential Oil Record* 36, 206-10 (1945).

Olive Oil Substitute

Tallow fatty acids have been fractionally crystallized from acetone at 0° to —60°C. By crystallizing at 0° to —20°C., a saturated acid fraction which amounts to 40-50 per cent by weight of the starting material was obtained. This fraction corresponds to double or triple-pressed stearic acid. The filtrate acids from the crystallization at —20°C. contain over 90 per cent of the oleic acid present in the starting material. In fatty-acid composition this mixture is similar to olive oil. From this fraction, which is about 50 per cent by weight of the starting material, a synthetic triglyceride with properties approximating those of olive oil was prepared. By crystallization of this oleic-acid rich fraction at —50° to —60°C., followed by fractional distillation, a good yield of purified oleic acid was obtained. D. Swern, H. B. Knight, J. T. Scanlan, and W. C. Ault. *Oil & Soap* 22, 302-4 (1945).

Surface-active Rosin Agents

Synthetic detergents are prepared by condensing rosin with an alkylating agent containing 10-14 carbon atoms, and sulfonating the compound before or after alkylation. As an example, 10 parts of rosin and 6 of lauryl alcohol are mixed, cooled to 20°C., and mixed with 14 parts of 20 per cent oleum at a temperature below 30°C. After 3 hours' stirring the mixture is neutralized with caustic soda and the pH adjusted to 8.5. The solution is evaporated. Rosin may also be alkylated with chlorinated kerosene. D. Price and E. L. May, to National Oil Products Co. U. S. Patent No. 2,376,381.

Study of Menhaden Oil

The methyl esters of menhaden oil have been fractionated. The C_{12}, C_{14}, C_{16}, and C_{18} main fractions were studied, mainly by low-temperature crystallization procedures. The oil has been shown to contain traces of lauric and dodecenoic acids. In the course of the investigation the following acids and their methyl esters were isolated from the oil; myristic, tetradecenoic (80 per cent), palmitic, hexadecenoic, stearic, and oleic. F. A. Smith and J. B. Brown. *Oil & Soap* 22, 277-83 (1945).

Stearic Acid from Castor Oil

By dehydroxylating the 12-hydroxy stearic acid, which may be prepared in a pure state by the alcoholysis of fully hydrogenated castor oil, at least a 40 per cent yield of an exceptionally pure stearic acid is obtained. This procedure avoids recourse to preparation of lead soap for the removal of unsaturated fatty acids, and the drudgery of repeated crystallizations. H. A. Schuette and D. A. Roth. *Oil & Soap* 22, 295-9 (1945).

PRODUCTION *Clinic*

By DR. E. G. THOMSSEN, PH.D.

SEVERAL years ago a play entitled "The Man Who Stood Still" was popular on Broadway. The main character of the play was an old watchmaker who kept on doing things the antiquated way, while his competitors passed him by, constantly improving their operating methods. We thought the men who stood still had pretty well passed on but recently ran into some of them again at two plants. The tragedy of it was that they boasted about their dislike for modern machinery and modern methods.

In one plant a salve-like preparation was being produced in large quantities. To fill it into cans and jars they had rigged up several small filling tanks with ell-handled faucet outlets. These were operated by girls who filled not over five to ten packages per minute. The finished product had a poor top on it, as it congealed, and had to be jarred by tapping each package on the table, to make it look anywhere near presentable. They knew that it could be filled four to five times as fast with a proper filler and would also look neater. The space required to do this they realized could be reduced to one-tenth, for with their method of filling they had to pile the filled containers on tables to cool them. When asked why they did not put in up-to-date equipment they replied that they had always conducted their operation in the same way and saw no reason to change.

In the second plant, a different situation presented itself. Here the owners had bought proper equipment, but the man in charge refused to use it because he was prejudiced against automatic machinery. We were called in for our opinion and had quite a siege of it. In spite of there being available modern, mechanical stirrers colloid mills and good filling equipment to make and fill products properly, it was insisted that unless the batches were made in the old way and stirred with hand paddles, they would be spoiled. The man in charge actually had the owners of the business afraid to use the new equipment they had purchased. Through a subterfuge, this man who stood still was sent away on a trip. When he returned we had broken in a number of younger men on the modern equipment, had cut the costs decidedly, were producing a better product and dissipated the myth that only hand stirring would produce the proper consistency. We had found out the main reason the batches were spoiled was that the stirrers were running too rapidly, and the equipment was not installed properly in other respects. It was useless for our backward friend to protest, as he was proven wrong and took his predicament philosophically.

These two cases fortunately are unusual ones. The great majority of manufacturers realize, unless they are progressive they will be left behind by their competitors. Our observation is that at the moment there is a great rush on the part of many to obtain new equipment at the earliest possible moment. Such equipment in most cases is not to be had promptly. It is not at all unusual to receive a reply from the machinery men that delivery cannot be made before 1947. It is not their fault for if their own plants are operating they are usually held up by being unable to get material or parts from other plants which may themselves be held up by labor troubles or lack of skilled labor. During these reconstruction days, then, it is good policy to initiate plant improvements promptly. Order 1947 new equipment now. Such a resolution made at this time will be one of the most constructive for the New Year.

From Our Advertising Pages

Some readers of trade papers may be inclined to skip over the advertising pages hurriedly. This is a mistake, as often the most valuable suggestions for product improvement or sales tips, are found in this part of a trade paper. In order to emphasize briefly some of the items which we believe are of interest to production men, we will mention them in this column from time to time. In doing so we do not mean either to boost or neglect any other advertised products, but rather to make some suggestions we believe may be helpful.

Liquid soaps have been more or less a headache for most manufacturers in the war years. Proper oils to make them are still hard to get. Philadelphia Quartz Co., Philadelphia, make a potassium silicate called "Kasil" which may be added advantageously to certain liquid soaps as a builder to aid their cleansing power. Incidentally, if you are interested in silicates and don't receive this company's house

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organ, get your name on their mailing list so you will receive their monthly bulletin "Silicate P's & Q's." It is worth reading as it tells many interesting facts about silicates.

Users of acids will certainly be interested in the announcement by General Chemical Company, New York, that they are introducing a new 6½ gallon carboy that pours and handles easily. The features of this carboy are that one man may handle it because of the lower gross weight, the wooden cover completely encloses the bottle, the pour-clean lid controls the stream for easier emptying even into smaller containers, the closure is a screw cap that securely and safely seals the opening, the contents are always in full view, less storage space is required as the carboys may be safely stacked one on the other, a stronger bottle is used to protect against breakage and finally the outside box is weather proofed with a resistant coating. These advantages hardly require further comment to anyone using acids or ammonia in carboys even if pouring racks are used.

The advertising of the National Can Corporation and U. S. Industrial Chemicals, Inc., always intrigues us. Both of these companies run their advertising in the form of interesting technical notes. Very little space is given to the advertiser's own products. If a reader is interested in further information regarding any subject or item described, further information is available on request. Much information is to be obtained by reading these advertisements.

The Dow Chemical Company, Midland, Mich., call attention to their "Methocel," a water soluble methyl cellulose as a possible solution for certain problems. This water soluble, nondecomposing cellulose ether is constantly finding increased uses, among which are those as a dispersing agent, thickener, binder and coating agent. Anyone with problems of this sort should drop Dow a line to learn more about "Methocel."

New Machines and Equipment

During the past few weeks we have received releases and pamphlets from various sources announcing new machines, equipment and apparatus. Our readers who are interested in these may receive full information by writing to the manufacturers directly.

Ammon-Schulte Co., Emsworth, Pittsburgh 2, Pa., announce a new high speed liquid and viscous products, rotary filling machine with a filling range from 2½ oz. to 2 pounds into any shaped container, including tapered shapes. From 55 to 160 containers may be filled per minute. It is known as the Asco-Dunn Filler.

R. P. Cargille, New York 6, have sent us an announcement of six new Hydrion Short Range pH Test Papers. Color changes for small pH intervals are so well defined that readings may be made to 0.25 pH. Their cost is low and either two papers in a special plastic dispenser or a complete set may be furnished.

The F. J. Stokes Co., Philadelphia, Pa., sent us a copy of the first complete book titled "Handbook on Tablet Manufacture" by John A. Silver and Ronald Clarkson. Compressed tablets have some application in the sanitary supply field. As this book covers tablet making very thoroughly, it would be advisable to have a copy in a technical library.

Issues Laundering Booklet

A revised edition of a "Reference Handbook on Modern Home Laundering of Today's Washables" has been released by the Home Economics Institute of Westinghouse Electric Appliance Division at Mansfield, O., the company announced Dec. 12. The booklet comprises a basic manual on efficient home laundering and is divided into these five sections: washing, drying, ironing, laundry planning and buying of washables. A sample copy is available free and additional copies may be had at five cents each.

Turco Issues Plane Booklet

Turco Products, Inc., Los Angeles, recently announced the issuance of a 28-page, illustrated booklet, "Plane Portraits," which contains a series of articles published in *Air Tech* magazine on the care and maintenance of aircraft. The booklet is available free to persons interested in industrial cleaning problems. Discussed are such problems as corrosion prevention, paint removal, the cleaning of transparent plastics, surface coatings, etc. In addition to technical data, the booklet contains a series of 8 x 11 inch, full color photographs of popular airplanes.

New Lecithin Producer

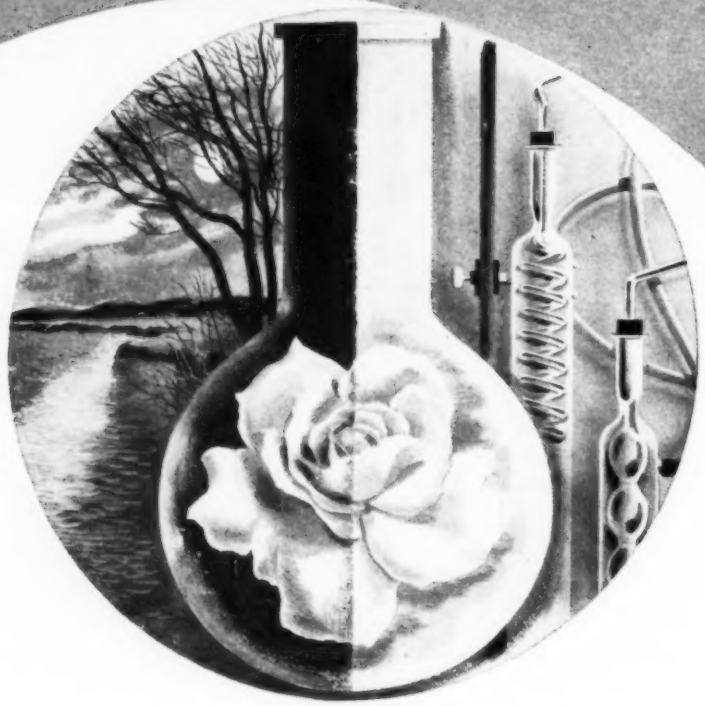
Robinson Wagner Co., New York, producers of lanoline and wool grease products, have recently started production of lecithin on a commercial scale at their Mamaroneck, N. Y. plant. "Rowag" lecithin is available in heavy or light consistency. The heavy grade has the consistency of a soft wax while the light grade is a homogeneous liquid of honey-like consistency. The liquid form offers industry many advantages from the standpoint of ease of handling and also can be used in many cases where lecithin in paste form has not proved satisfactory. "Rowag" lecithin is said to be distinguished by its brilliant color, transparency and clean odor. A booklet, "Lecithin and its Use in Industry," is available upon request.

New Continental Can L. A. Plant

The paper division of Continental Can Co., New York, has acquired a modern factory building at 4950 Long Beach Ave., Los Angeles, for the manufacture of a full line of paper products, except fibre drums, the company announced Dec. 14. The new building has a total floor space of 114,000 square feet and is equipped with a loading dock and a six-car siding. Manufacturing operations were scheduled to begin shortly after the first of the new year.

Phila. Quartz Organ is 25

"Silicate P's & Q's," external house organ of Philadelphia Quartz Co., Philadelphia, recently celebrated its 25th anniversary. The paper was begun in 1921 and has appeared regularly ever since. In that time is has had but two editors, the first being James G. Vail, one of the company's vice-presidents. It is currently being edited by C. H. Jeglum.



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PRODUCTS AND PROCESSES

Mechanics' Hand Soap

New compositions comprise (1) 50-70 per cent of dried, residual meal obtained on extracting oil, protein and carbohydrates from soybeans and having a particle size between 20 and 60 mesh, and (2) 50-30 per cent of a mildly alkaline salt such as a carbonate, bicarbonate, sesquicarbonate, borate, phosphate, or metaphosphate, with or without soap. The soybean meal consists of 15-25 per cent fiber and an equal amount of unextracted protein. The coarser this is ground, the more predominant is its physical action as a very mild abrasive, and the less pronounced its action as a buffer and colloidal detergent. S. O. Fiedler, to The Drackett Co. U. S. Patent No. 2,380,830.

Vulcanized Oil Emulsions

Aqueous dispersion of partially and fully vulcanized fatty oils is produced by employment of methyl cellulose in the amount of about 0.01-2.0 per cent, based on solid content, and a wetting agent such as ammonium soap, amine soap or alkali metal soap. L. Auer. U. S. Patent No. 2,382,532.

Hand Soap from Oils

Soap can be made by treatment of oil with soda ash at an elevated temperature. After preheating the oil to 160-220°C., mix and heat with sufficient soda ash for complete saponification at 200-300°C. During the heating carbon dioxide is generated which prevents oxidation and discoloration. Additional carbon dioxide may be used as well as glass-lined autoclaves for heating under reduced pressure. As an example, heat 300 parts of linseed oil with 70 parts of soda ash to 250°C. for 4.5 hours to obtain a soft solid. Using the same components, raise the temperature gradually to 270°C. Place the vessel under vacuum and increase the temperature to 300°C. The product is a brownish hard solid.

As another example 440 parts of fish oil and 66 parts of rosin are heated to 300°C. Add 93 parts of soda ash and 12 parts of caustic soda, and maintain the temperature at 270-290°C. for 4-5 hours. Linseed oil and sunflower oil may be used with rosin in a similar method. L. Auer. U. S. Patents 2,382,530 and 2,382,531.

Borate Detergent

A detergent composition contains a water-soluble ionizable anionic surface-active compound and sodium oxide and boric oxide in the ratio of 3 molecules of Na_2O to 1 molecule of B_2O_3. The ratio of the material containing the boron and sodium to the surface-active compound is 1:1. The boron-containing material is prepared by treating borax with caustic soda in the proportion of 1 molecule of the former to 2 molecules of the latter, and converting the resulting composition to powder or granular form. The composition may also include tetrasodium pyrophosphate or sodium hexametaphosphate. Foster D. Snell. British Patent No. 561,294.

Wet-cleaning Worsted

A non-proprietary soap known as creosote soap appears to be an effective scouring agent for cleaning such difficult goods as black and white check worsted pieces, without danger of the white areas being stained. For any such cleaning the dyeing has of course to be done carefully in the first place. *Rayon Textile Mo. 27*, No. 11, 98 (1945).

Soaps from Mono-esters

Soap is produced by saponifying a fatty-acid ester of a lower alkyl monohydric alcohol, and removing the alcohol from the reaction mixture by distillation. An advantageous method of operation is to mix the reactants under atmospheric pressure, and then to flash the reaction products to a separation chamber under reduced pressure. Reaction may take place in a plodder with discharge under reduced pressure. The product may then be passed through another continuous mixer or plodder and discharged from this into the atmosphere in the desired form such as bars, fibers, tubes or grains.

The soap from the vapor separation chamber may be discharged into a cooling circuit for partial solidification. It may then be passed to an extrusion orifice, where it can be cut into bars. During the cooling operation while the soap is still liquid, perfume, coloring matter etc. may be added. Colgate - Palmolive - Peet Co., British Patent No. 571,145.

Supertough Soap Bubbles

Far from being limited to use in children's bubble pipes, tough soap film solutions have many applications in solving intricate engineering, combustion and other technical problems. Glycerine can be used to toughen soap bubbles, as in the following formula.

	Ounce
Pure Castile or palm oil soap	1
Distilled water	8
Pure glycerine	4

Cut the soap into thin shavings and dissolve in water. When solution is complete, add the glycerine and mix thoroughly. On standing the liquid becomes clear at the bottom. This clear portion is removed by a siphon and keeps indefinitely.

Another method for the preparation of tough soap films is to add a very small quantity of triethylamine oleate to a 50 per cent solution of glycerine in distilled water. Films of this substance sometimes last through a working day and have been used for airplane beam investigations. *Glycerine Facts*, November, 1945.

Water in Glycerine

By use of the Fischer titration method, 5 determinations of water in glycerine can be carried out in one hour. The results are in good agreement with figures obtained from the specific gravity method. Both specific-gravity and Dean-Stark methods are time consuming, and the latter is apparently not too reproducible. The Fischer titration method described has been used with other viscous or hygroscopic materials such as ethylene glycol, with good results. J. L. Monkman. *Canadian Chem. & Process Industries* 29, 654 (1945).

NEW PATENTS

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Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine & Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,388,393, Insecticide, patented November 6, 1945 by Hans J. Diem, Bradenton, Fla. A liquid insecticide extractive comprising a mixture of Pycnothymus rigidus and an organic solvent.

No. 2,388,614, Disinfectant Compositions, patented November 6, 1945 by James Emory Kirby and John Frank Lontz, Wilmington, assignors to E. I. du Pont de Nemours & Co., Wilmington. A bactericidal composition comprising a betaine having, on an annular atom thereof, an alkyl radical of at least eight carbon atoms and a water-soluble linear polymeric amidine salt wherein the amidine salt groups are separated by bivalent aliphatic hydrocarbon radicals of at least six carbon atoms.

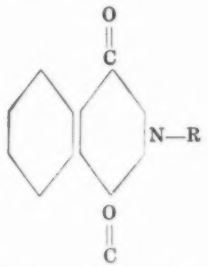
No. 2,388,632, Granular Soap Product, patented November 6, 1945 by David R. Byerly, Wyoming, Ohio, assignor to The Procter & Gamble Co., Cincinnati. A granular soap product comprising a uniform mechanical mixture of a granular soap which balls when added to warm water and a granular, substantially non-balling soap product whose fat formula contains coconut oil in substantial proportion, the balling tendency of the mechanical mixture under comparable conditions being less than that of a granular soap product containing the same proportion of coconut oil soap and otherwise comparable, but prepared from a mixture of fats containing the coconut oil.

No. 2,388,767, Soap Composition, patented November 13, 1945 by Leopold Safrin, Philadelphia, assignor to Wilson & Co. A soap composition comprising essentially an alkali metal soap of a tallow soap stock and small amounts of hydrogenated rosin and a purified, substantially salt-free alkali sulfonate of a mixture of hydrocarbons having a predominant portion of straight chain saturated aliphatic hydrocarbons of 12 to 14 carbon atoms in the molecules, the amount of said sulfonate varying from about ½ to 1½ per cent by weight and the said rosin from about 1 to 5 per cent by weight.

No. 2,389,173, Recovery of Glycerol from Fermented Liquors, patented November 20, 1945 by Robert Alan Walmesley, Howwood, Scotland, assignor to Imperial Chemical Industries Limited, Great Britain.

A method for the recovery of glycerol from carbohydrate fermentation still residues which comprises the steps of concentrating the still residue until it contains not more than about 40 per cent water by evaporation with water at raised temperature, mixing with said concentrate at a temperature between 40° and 80°C. and at which it is still fluid a quantity of an alkaline earth material sufficient to form a cream containing an undissolved excess of metal hydroxide, admixing with said cream while still fluid a water miscible alcohol in quantity sufficient to form a 7-15 percent solution of glycerol, and separating said alcoholic solution from the residue.

No. 2,389,427, Insect Repellents, patented November 20, 1945 by Samuel I. Gertler, Washington, D. C., assignor to the United States of America, as represented by the Secretary of Agriculture. An insect-repellent composition comprising a liquid compound of the formula



where R is a butyl radical, incorporated in an applicator.

No. 2,389,736, Soap Sheet and Method of Making Same, patented November 27, 1945 by James H. Muise, Bridgeport, Conn. As a new article of manufacture, a pair of superposed sheets of paper with a layer of soap interposed between them and binding them together into a unitary structure, said paper being capable of disintegrating when wet.

Briquette Detergent Compound

Modern mechanical methods for washing dishes, milk cans etc. present the problem of maintaining the desired concentration of alkali in the wash tanks. The use of solid briquettes has proved very satisfactory but as previously compounded these have certain drawbacks. For example, briquettes have been produced by fusing mixtures of trisodium phosphate and soda ash. The relatively high temperatures required to fuse these salts precludes the use of many substances whose presence in the mixture would be desirable such as detergents and water softeners.

This difficulty is met by forming the briquettes without resort to high temperatures. The improved blocks consist of a dense crystalline aggregate of relatively uniform composition, strong and hard, and both physically and chemically stable. The mixture consists essentially of controlled proportions of sodium silicate, water, and trisodium phosphate or soda ash compounded at a temperature at which the mixture is fluid. Tetrasodium pyrophosphate, sodium tetraphosphate, sodium metaphosphate, and various surface-active agents may be included. An example of a base mixture is 1-25 per cent of a sodium silicate with a ratio of $Na_2O:SiO_2$ between 1 and 2, 1-15 per cent of trisodium phosphate, and 20-50 per cent of soda ash. H. G. C. Fairweather. British Patent No. 570,171.

Milton Harris Expands

Milton Harris Associates, consultants, who maintain research laboratories at 1346 Taylor St., N.W., Washington, D. C., have acquired an additional 3,000 square feet of floor space at their present location, they announced recently.

Cain Hooker Chicago Salesman

The Hooker Electrochemical Company of Niagara Falls, N. Y., has recently assigned Charles Y. Cain to the sales territory in the vicinity of Chicago, Illinois.

Continuous Saponification

The process involves heating saponifiable material and anhydrous alkalies at a high temperature in the presence of a nonaqueous diluent, then suddenly reducing the pressure to permit instantaneous evaporation of the diluent and volatile matter. The diluent also has the important function of transmitting the heat uniformly throughout the mass.

Mix the saponifiable material and anhydrous alkali with sufficient kerosene to make a fluid mass and heat to 200-300°C. After sufficient saponification, spray the gel produced into a spray chamber in vacuo. The boiling point of the mixture will be less than either of the components, and distillation occurs almost instantaneously, causing the glycerol and diluent to flash into vapor which passes out through a pipe into a condenser. Since the diluent will generally be lighter than the glycerol, it will rise to the top and can be drawn off by one pipe while the glycerol is drawn off in another pipe. The solid soap particles precipitate and fall to the bottom of the spray chamber where they can pass into a screw conveyor to be delivered to suitable molds or packaging machinery.

By having two saponification vessels or a long reaction tube, the process can be made continuous. By adjustment of the amount of diluent, not all of this need be evaporated. For example, a soap containing 40 per cent of naphtha can be manufactured. Soap greases containing from 60 to 90 per cent of soap may be made by adding lubricating oil after saponification, and then spraying. By changing the proportions of the reactants and producing only partial saponification, products such as mono- and di-oleates and stearates can be prepared. J. J. Jacobs, to Autoxygen, Inc. U. S. Patent No. 2,380,650.

Cooling Soap in a Liquid

Molten anhydrous soap may be expressed through round orifices 1/16 to ½ inch in diameter, in the form of threads out of contact with air into a pool of cooling liquid. This avoids decomposition and discoloration of the soap. The molten soap is cooled by contact with the liquid and when brine is used, the outer portion of each thread becomes hydrated. The threads are kept out of contact with each other for a short time and the soap filaments are then removed from the pool at a temperature where oxidation upon exposure to air is negligible. The soap can then be passed to mills and plodders for further processing. For an anhydrous product, white oil, kerosene, decalin, or tetralin may be used. J. Ross, to Colgate-Palmolive-Peet Co. U. S. Patent No. 2,381,368.

Hydrate Nature of Soap

A method combining the use of controlled dehydrations and x-ray diffraction analyses has been employed in studying the hydrate nature of several crystalline forms of soap. The alpha form of 1:1 acid sodium stearate is a nonhydrated phase at room temperature and no change in the powder pattern occurs on heating the crystals to 105°C. The dehydration curves for mu sodium myristate and delta sodium palmitate are typical of the dehydration behavior of the large class of phases which occur in "worked" soap-water systems. These phases are definite hydrates containing ⅜ and ½ molecule of water per molecule of soap, respectively, Several other phases with their hydrate content are described for worked soap. As a result of these studies it is believed that all neutral sodium phases occurring in the central areas of the phase maps of worked soap-water systems are definite hydrates. K. W. Gardiner, M. J. Buerger, and L. B. Smith. *J. Phys. Chem.* 49, 417-28 (1945).

Packaged Powders or Granules

A tester for packaged products, known as the Vibration Table, manufactured by the L.A.B. Corporation of Summit, N. J., is intended to simulate the pitch and toss of a railroad freight car in transit.

Hydrogenation of Soybean Oil

Soybean oil partially hydrogenated contains an iso-diene acid that resists conjugation by alkali. The source and structure of this acid has not been determined. B. F. Daubert and L. J. Filer, Jr. *Oil & Soap* 22, 299-302 (1945).

Laundry Rinse Operation

The number of rinses to be used after thorough washing in the laundry will depend on the type of work and the amount and type of soil to be removed. A good full rinse should remove ½ to ⅝ of the foreign matter from the previous operation. Most formulas call for at least 4 rinses prior to the sour or bluing operation. However, in washing very clean work, three good full rinses should be sufficient, as there will be very little foreign matter or soap and alkali to be removed from the last suds.

In washing very soiled work it is sometimes necessary to use five and even 6 rinses. Here testing by titration is the only reliable way to ascertain when the load has been properly rinsed. Proper rinsing is secured only when the final rinse waters test close to the normal water supply, without the aid of souring.

In washing colored work, a common error creeps into general laundry practice. Most people do not realize that colored work is dirtier than comparable white work. One reason is that colored clothing is usually worn longer than white clothing, for the simple reason that it does not show the dirt. In rinsing colored clothing, dirt is usually concealed, so that colored work sometimes has a faint odor indicative of incomplete washing and incomplete rinsing. Lower temperatures for colored work also emphasize the need for more complete rinsing. D. X. Clarin. *Laundryman*, Sept. 1945.

Splitting Oils and Fats

Fats and oils are hydrolyzed in several successive stages. They are supplied under pressure to the first zone, while water is supplied at an elevated temperature and at a higher pressure to the last of the successive zones. The fatty material is transferred to each succeeding zone under increasing pressures, while the water and resulting glycerine are transferred in the reverse order from succeeding to preceding zones under decreasing pressures. Water and glycerine are withdrawn from the first zone and fatty acids from the last zone. Lever Brothers and Unilever Ltd. British Patent No. 561,191.

New Sulfonate Detergent

A new type of synthetic detergent developed by the Solvay Process Company carries the name "Nytron." It is a complex organic sodium sulfonate in which the hydrocarbon portion is derived entirely from a petroleum base. The material is said to have excellent detergent properties and to be resistant to calcium and magnesium. It is very soluble and will make solutions up to 40 per cent concentration. The solution is mildly alkaline, running from pH 8.5 to 9.2. The material is as yet available in experimental quantities only.

Self-polishing Base

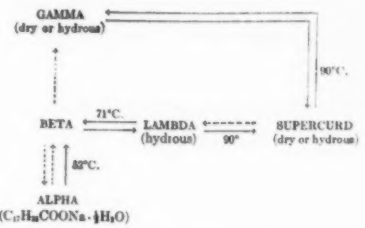
A solid self-polishing composition for the production of a wax-in-water emulsion when mixed with hot water, comprises a dispersion of an aqueous soap phase in a wax composition. The water content in the soap phase is of major importance; it must be sufficient to dissolve the soap at the boiling point of water, but insufficient to make the whole base liquid at ordinary temperatures. The proportion of soap ranges from 10 to 30 parts for each 100 parts of the wax composition. When stirred with water the material undergoes change to form a free-flowing dispersion constituting a self-polishing product. L. C. Cartwright. U. S. Patent No. 2,374,414.

Behavior of Bleached Fabrics

The behavior of bleached fabrics toward acid and alkali was reported on by Dr. Eugene Pacso, Princeton University, in a paper delivered at the annual meeting of the Textile Research Institute in New York, November 9. The behavior of the aldehyde type of oxycellulose was the particular topic under investigation by Dr. Pacsu. He found that use of suitable bleaching or oxidizing agents in its production, completely eliminating the aldehyde type of oxidation, should result in improved fibers which would not deteriorate rapidly even in a mildly alkaline medium such as a soap solution. On the other hand, if the employment of bleaching or oxidizing agents which produce the aldehyde type of oxycellulose is unavoidable, then the use of some neutral or slightly acidic detergent of soap would be most advantageous.

Transition States of Soap

The transition states occurring in dry and hydrous sodium stearate containing 2.5 per cent of water, were studied in order to show how many modifications of soap can be realized at room temperature, the conditions for preparing each form, and the reversibility of the various transitions.



Alpha sodium stearate can be taken to be a hemihydrate and beta sodium stearate a less hydrous form but not necessarily a hydrate. Transition from alpha to beta occurs at 52° C. on heating and is usually not reversed on cooling. The genotypic point appears to be a transition of the second kind, occurring reversibly at about 71° C. The name lambda sodium stearate has been suggested for the form existing between 71° and 90° C., which reverts to beta on cooling below 71° C.

Ordinarily cooling supercurd below 90° C. results in the formation of gamma sodium stearate, particularly for samples containing more than 1.5 per cent of water. The transition from supercurd to subwaxy appears to be entirely reversible and always occurs regardless of the initial form of the soap at room temperature. The same is true of all the higher temperature transitions. Robert D. Vold. *J. Phys. Chem.* 49, 315-27 (1945).

OPA Action Against Westall

OPA has recently filed a damage action against Evelyn Westall Co., cosmetic manufacturers, New York, in the U. S. Southern District Court. Treble damages of $150,000 are sought on the charge that the Westall firm forced customers to pay over-ceiling prices.

Detergents and the Skin

The soft slippery feeling which ensues after washing the hands with soap and water is probably due partially to a deposition of calcium soaps, but mainly to a swelling and softening effect of the alkali on the horny layers. When repeated too often or too long continued, washing with soap may result in damage which manifests itself by roughness or scaling and ultimately by irritation and redness. The greater the number of cells scaled off, the thinner the remaining protective horny layer, and the greater the chance for soap to affect the sub-adjacent layers in subsequent washings. Also, penetration and damage by substances other than soap is facilitated.

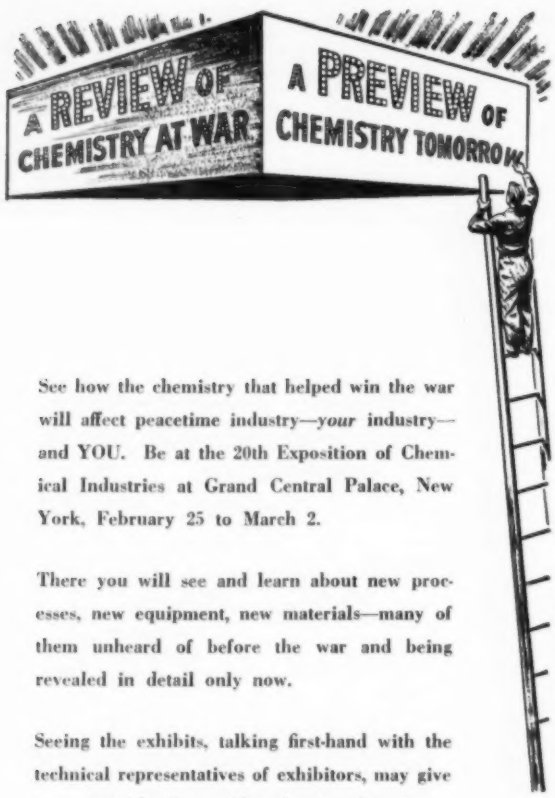
When the skin is washed with soap and water, the resulting alkalinity of the skin surface persists for varying periods of time until the skin is able to re-establish the normal acid reaction of its surface. This may play a part in the greater penetration of irritants and pathogenic agents after excessive use of soap, as by laundresses, surgeons, and some industrial workers. It seems probable that synthetic detergents, because they are less alkaline than soaps, will be less likely to disturb the normal acid mantle of the skin. A. W. Matthews. *Perfumery & Essential Oil Record* 36, 251-3 (1945).

Extraction of Soybean Oil

Initial very fine grinding, such as obtained by using the Mikro-Pulverizer, Bauer, and Arcade mills, is essential to more complete extraction of soybean oil in the official A.O.C.S. method of analysis. Much of the increase of 0.2-0.4 per cent of oil obtained by regrinding finely ground soybean meals is probably caused by the gain of 3-5 per cent in moisture content of the meal due to high humidity conditions at the regrind period. F. I. Collins and O. A. Krober. *Oil & Soap* 22, 307-10 (1945).

Dr. Schwartz Joins Harris Assoc.

Dr. Anthony M. Schwartz is now a member of the staff of Milton Harris Associates, Washington, D. C. Dr. Schwartz formerly was director of research of the Alrose Chemical Co., Providence, R. I.



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BUBBLE SOLUTIONS

(*From Page 37*)

dyes may be omitted and a very small proportion of petroleum added to provide an interesting iridescent effect. The longevity of the bubbles may be increased by using more gum arabic, but this will result in smaller bubbles —perhaps a factor of not too great importance in products designed for self-amusement. Although almost any kind of good soap may be used, the type specified is said to give best results.

Methyl cellulose may also be employed in making bubble blowing soaps, especially where it is desired to blow large bubbles lasting quite a long time. Methyl cellulose forms a fairly tough film and gives strength to the bubble sidewall, which when combined with the action of glycerine, provides bubbles of substantial longevity. A product of this type has been given (12) as consisting of:

Coconut oil potash soap	5 parts
Glycerine	2 parts
Methyl cellulose	1 part
Water	92 parts

Synthetic detergents with high foaming properties, especially if fortified with glycerine, can be used to make bubble solutions. With such materials, however, cost factors must be taken into consideration.

Chemists in the laboratories of one manufacturer of synthetic detergents have done some work in this field. They suggest that a preparation made up in the following manner will provide at least an experimental starting point toward the desired product:

Gelatin	6 parts
Water	50 parts
Glycerine	12 parts
Diethylene glycol	13 parts
Denatured alcohol	7 parts
Nacconol NRSF	12 parts

Soak the gelatin in the water until swelled and then heat until dissolved. Mix the glycerine, glycol and alcohol and add this solution to the gelatin portion. Finally dissolve in the Nacconol.

Saponin can also be used to make bubble-blowing solutions. Boys remarks that a very dilute solution of saponin in water provides bubbles that are both "ludicrous" and surprising. A 1:1,000 solution does very well, but the addition of glycerine up to one-half the original volume has an excellent effect on prolonging the life of bubbles.

Although most of the bubble products now being sold are in the form of solution, powders are sometimes provided with bubble-blowing pipes and gadgets. These powders are dissolved in a specified quantity of water to form the requisite solution. A suitable powder might well be made with dry powdered soap. If desired a small proportion of a soluble gum might well be included to help compensate for the absence of bubble-toughening glycerine. Saponin may also be used to make such powders, only a little of the powder being required.

With exception of the products now being sold for children, the po-

tentialities of suitable bubble solutions as amusements for home or for public entertainment have hardly been exploited. Those who wish to take advantage of the current interest in bubbles to push the idea further will find a wealth of information in Boys' (2) book and in articles such as those of Luther (4) and Cook (6). Certainly the possibilities are worth exploring.

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TGA Scientific Group Meets

At a meeting of the scientific section of the Toilet Goods Association at the Hotel Biltmore, New York, Dec. 6, about 300 members and guests heard reports on the research activities of the section. Dr. K. L. Russell, of Colgate-Palmolive-Peet Co., Jersey City, is chairman of the section. Speakers included: Dr. James Hiller, research engineer of the RCA Laboratories, who discussed the electron microscope; M. G. deNavarre, of Maison G. deNavarre Associates, who, in speaking of the effect of polyols on emulsions, said that the polyols of commerce, such as glycerine, propylene-glycol and sorbitol syrup, while possessing humectant and plasticizing properties, replace each other only to a limited extent; Ruth R. Bien, of Good Housekeeping Bureau Laboratory, New York, who spoke on experiments undertaken to establish the effect of low pH creams on fabric and the development of standard methods for determining fabric damage; R. Paul Schrieber, senior chemist for the Research and Development Branch, Military Planning Division of the Office of Quartermaster General spoke on protective skin creams from the military standpoint; Dr. Herbert Heinrich, director of research, Kolmar Laboratories, New York, spoke on "Forecasting Consumer Reaction," while Orville Davenport, Allied Products, Inc., New York, and Dr. Erwin Di Cyan, of Di Cyan and Brown, New York, spoke on cosmetics.

New Plant for Gunning

Gunning and Gunning have recently purchased a plant in Newark, N. J., for their aromatics division which will be ready for occupancy in the early part of 1946. Manufacturing operations will be moved from New York after new equipment has been installed. Offices will still be retained at 601 West 26th St., New York.

Insecticidal Liquid

When ethylene and acetylene are caused to react with benzene in the presence of aluminum chloride, a high-boiling liquid results which is essentially 1,1-diphenyl ethane and ethyl substitution products thereof. This fraction has parasiticidal properties and is a desirable carrier for organic toxicants in general, and rotenone and dinitrophenol in particular. G. E. Lynn and F. W. Fletcher, to Dow Chemical Co. U. S. Patent No. 2,378,-309.

Study DDT Aerial Spraying

Various types of sprays containing DDT were successfully used with ground and aerial equipment in controlling the gypsy moth, green-striped maple worm, red-headed pine sawfly, imported sawfly, and spruce budworm. The 40-acre watershed of a small reservoir was treated at the rate of 5 pounds of DDT in 5 gallons of oil, per acre. Three days later, after 0.75 inches of rain had fallen, an analysis of water samples from the reservoir indicated less than 1 part of DDT in 100 million parts of water. There was no evidence of bird mortality in the treated area, but some of the fish and bullfrogs in the reservoir were killed. Most species of insects were greatly reduced in numbers, but 3 days after the spray had been applied, enough specimens of most species remained to repopulate the area. P. B. Dowden, D. Whittam, H. K. Townes, and N. Hotchkiss. U. S. Dept. Agr., Bur. Entomol. Plant Quarantine E-663, 13 pp. (1945)

Copper Effects on Cellulose

Mitigating against the extension of today's extremely wide use of copper naphthenate as a fungicide, have been recurring rumors that copper compounds tend to catalyze the oxidation of cellulose. Work to determine the validity of this indicated that it is impossible to generalize about the effect of copper salts on the oxidation of cellulose. While copper sulfate seems to have such an effect, copper naphthenate does not appear to hasten the oxidative breakdown of fabrics or cordage. When compounded with other materials which contribute beneficial mechanical effects, the naphthenate may actually act as a protective agent against oxidation as well as against fungus attack. A. D. Bartlett and M. Goll. *Am. Dyestuff Reporter* 34, 225-7 (1945).

Glycol for Air Sterilization

A practical installation for triethylene glycol generation and distribution was made in a military camp. Glycol concentrations of 0.0025 to 0.004 milligram per liter of air, and optimum relative humidities were maintained. Studies were made on three groups of 640 men, observed for 6-week intervals and equally divided into test and controls. The former slept in glycol-treated quarters, the latter in untreated dormitories. An overall reduction in air-borne disease of 12 per cent was produced for the entire period, but the statistics on the final 17 days showed a reduction of 64 per cent.

Explanations for this phenomenon are presented. The incidence of hemolytic streptococci recovered from throat cultures of men exposed to the effect of the glycol vapors fell dramatically in contrast to the control individuals. There was a definite prevention of spread of these organisms in the dormitories. E. Bigg, B. H. Jennings, and F. C. W. Olson. *Am. J. Pub. Health* 35, 788-98 (1945).

Mosquito Control

Any of the following chemical methods may be used for treating still bodies of water to kill mosquito larvae. Oil with low-grade kerosene in an amount corresponding to 1 ounce for 15 square feet; spread pyrethrum in soap-stabilized oil-water emulsion; or dust with Paris green powder. R. B. Jackson. Water Works & Sewerage 92, 233-4 (1945).

Roach Killer

A noncaking insecticide for roaches consists of 25 grams of sodium fluoride suspended in about 100 ml. of kerosene, together with about 150 mg. of pyrethrins. F. L. Campbell, to Huntington Laboratories, Inc. Canadian Patent No. 429,587.

Antiseptic Anionic Agents

Among the anionic synthetic detergents of the aryl alkyl sulfonate type such as the "Nacconols" are products which can be used in neutral or acid solution to give a much stronger antiseptic action than is possible with soap solutions. These detergents are valuable because a worthwhile antiseptic action is obtained without toxic effects. Further study is important to establish the optimum conditions of use for antiseptic action. The insecticidal effect is very slow and requires 24-40 hours for the full effect.

Wool washed with such a detergent absorbs some of it through a loose combination with protein. If wool so washed is not rinsed too long in fresh water, it is sufficiently mothproof so that it will not support the growth of young moth larvae. Moth eggs do not mature when placed on wool washed with these detergents. The latter, in addition to bactericidal and fungicidal action, are repellents for cockroaches and many other insects. L. H. Flett. *Oil & Soap* 22, 245-9 (1945).

Toxic Principle of Squill

The red pigment of red squill is partly a tannin of the pyrocatechol group and is not the principle toxic to rats as has been suggested. The toxic principle is the scilliroside of Stoll and Renz. Fresh white squill is as toxic to rats as red squill, but loses its toxicity upon drying and aging. In red squill the red tannin pigment protects the toxic principle from destruction by oxidation upon drying. H. Roques. *Bull filial. soc. biol.* Paris 1942-4, 21-2.

DDT Analysis

A method is described for the determination of the most effective insecticidal component present in technical DDT, which is 1-trichloro-2,2-bis (*para*-chlorophenyl) ethane. The method involves crystallization of this compound from its saturated solution in 75 per cent ethyl alcohol, and is reliable to about 1 per cent. S. J. Cristol, R. A. Hayes, and H. L. Haller. *Ind. Eng. Chem.*, Anal. Ed. 17, 70-2 (1945).

SANITARY PRODUCTS

A SECTION OF SOAP

Official Publication **National Association of Insecticide & Disinfectant Manufacturers**

WITH a new insecticide law in the offing in Washington to replace the Insectide Act of 1910, the latter long since outmoded by the march of progress over the past 35 years, some anticipated disagreements are developing among conflicting interests. The new proposed law has a background of experience both from the angle of the insecticide manufacturer and law enforcement. It comes from a study of producing, packaging, selling and using insecticides, disinfectants, rodenticides, and related economic poisons dating back at least twenty years. The new law is expertly drawn based on a study of law enforcement and is understood unofficially to have the blessing of the Department of Agriculture whose job it will be to enforce it. In general, we feel that it is acceptable to the insecticide industry as a whole, but with certain rather definite exceptions.

The new law calls for the registration of all economic poisons with the Department of Agriculture if they are to be sold in interstate commerce. As far as we can determine among insecticide and disinfectant manufacturers, both agricultural and household, a great majority are strongly opposed to this requirement. They maintain, and in this we fully agree, that registration serves no useful purpose in states where it is now in force, and that the same applies to the federal law. It would mean a further unnecessary expense both to manufacturers and to the government for law enforcement. It would mean a further multiplication of clerical work both by government and industry. And to what useful end? What good would it do in law enforcement? What facts or help would it give to law enforcement officials which they would not have anyway,—which they do not have today under the old law?

Although other points of disagreement will undoubtedly come forward when and if hearings are held on the new proposed law, this matter of registration is a bad feature on its face, a bad feature of an otherwise good law, which should be eliminated. Most serious is the fact that it sets a precedent in government registration of commodities, a precedent of further regimentation. Who is to say that it shall not spread to foods, to drugs, to fertilizers, to all chemicals at some later date? Why should insecticides, disinfectants and other economic poisons be chosen to set such a precedent?

Although the new proposed act is as yet not law and will not be for well over a year at least, we profoundly hope for two things when and if it is enacted,—that it will be enforced on the whole with the same degree of good sense and understanding which has marked enforcement of the Insecticide Act of 1910 for the past twenty years, —and that it will be the forerunner of uniform state legislation of a similar character.

RECENTLY upon his induction as chairman of the New York Board of Trade, Ralph E. Dorland had the following to say: "For four years, we yielded many of our individual rights and privileges as citizens to the necessity of winning the war. . . . The whole philosophy of government control over business must be reexamined on the basis of peace." To this we subscribe a fervent "amen!"

Officers and Governors of the

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Sinclair Refining Co.

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N. J. GOTHARD
Sinclair Refining Co.

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NAIDM ELECTS GOTHARD

ELECTION of new officers and directors; a comprehensive review of insecticides — with special emphasis on DDT—, symposiums on disinfectants and sanitary products, with particular attention to the serious supply situation in carnauba wax; a review of some of the aspects of labeling, discussion of the proposed new federal insecticide act, and a resolution extending future meetings from two to three days were the highlights of the 32nd annual convention of the National Association of Insecticide and Disinfectant Manufacturers held in New York, Dec. 3 and 4 at the Hotel Commodore. Attendance approximated 500 members and guests.

N. J. Gothard of Sinclair Refining Co., East Chicago, Ind., first vice-president of the Association, was elected president to succeed Henry A. Nelson of Chemical Supply Co., Cleveland, who completed his second term as president. Gordon M. Baird of Baird & McGuire, Inc., Holbrook, Mass., was elected first vice-president and A. W. Morrison of Socony-Vacuum Oil Co., New York, was named to succeed him as second vice-president. The offices of treasurer and secretary continue in the hands of John Powell of John Powell & Co., New York, and H. W. Hamilton of the White Tar division of Koppers Co., Kearny, N.J., respectively.

The following changes were effected in the make-up of the membership of the board of governors: Retiring president Henry A. Nelson was elected to a three year term, as were D. F. Murphy of Rohm & Haas Co., Philadelphia, and Jack Varley of Baird & McGuire, Inc., St. Louis. Arthur Rasmussen of Furst-McNess Co., Freeport, Ill., was elected to a two year term, and G. H. Wood of G. H. Wood & Co., Toronto, Canada, was elected to a one year term on the board.

The meeting was opened Monday morning, Dec. 3 by President Nelson. The report of Secretary Hamilton was followed by John B. Gordon, the Washington representative of N.A.I.D.M., who told the group that the U. S. Government was negotiating with the Dutch government for the purchase of an estimated 600 million dollars' worth of tin to be exported to the U. S. as soon as the trouble in Java ends. The availability of this tin for sprayer and can manufacturers will relieve present shortages, the speaker pointed out. He then went on to discuss the fats and oils situation, which products, he indicated, would remain in short supply during 1946. Less cottonseed oil as a result of a short cotton crop; less soybean oil because of similar conditions and less lard due to reduced hog slaughter were predicted by Mr. Gordon for the coming year. The one bright spot in the fats and oils supply picture had to do with tallow which would be easier in 1946 as a result of increased beef slaughter. Linseed oil would be scarce in 1946, he concluded.

Concluding reports of Association officials at the opening session was W. J. Zick, of Stanco, Inc., New York, chairman of the legislative committee, who reported on the work of his group. He said that in 1945 the legislatures of 44 states were in session. He also reported that a commit-

D AT 32ND ANNUAL MEETING

tee representing N.A.I.D.M. met with the Department of Agriculture in Washington, D.C., to discuss the new proposed Federal Insecticide Act, and that some suggestions of the committee had been included. He also outlined the work of the committee on DDT labeling.

Dwight W. Michener, assistant director, research department, Chase National Bank, New York, spoke on the "Business Outlook." He outlined the various factors that would affect the postwar business economy, such as production, prices, wages, labor, employment. In general, Mr. Michener indicated that the immediate postwar economy would level off from the great productive, earning and employment heights reached during the war, but would remain considerably above the levels of the average of the best immediate pre-war years. As to inflation, Mr. Michener declared we are having it now, and warned against its serious consequences unless adequate protective measures are soon put into effect.

Dr. E. L. Griffin, acting chief of the insecticide division, Livestock Branch, U. S. Department of Agriculture, Washington, D.C., was the next speaker. He substituted for the scheduled speaker, W. G. Reed, Chief of the insecticide division, who was ill. The paper, "Enforcing the Federal Insecticide Act," appears elsewhere in this issue.

At the luncheon on Monday, Dec. 3, J. L. Brenn of Huntington Laboratories, Inc., Huntington, Ind., a past president of the N.A.I.D.M., and a member of its board of governors, presented the association's secretary, H. W. Hamilton with a set of *Encyclopedia Brittanica* on behalf of the organization. The retiring president, Henry A. Nelson was presented the photograph of a chronometer that he will receive as soon as it becomes available.

The Dec. 3 afternoon session was opened with a paper by Henry F. Herrmann, of General Dyestuff Corp., New York, who discussed "Dyeing and Coloring of Sanitary Products." He gave a brief explanation of color terminology as well as an exposition of the various factors to be considered before choosing a particular color for a chemical compound. Among the considerations involved, the speaker asserted, are: the physical characteristics of the constituents and the finished preparation; the principal solvent used; the final color desired; permanence requirements — staining limitations, cost factors, container construction; Federal regulations (if any) with respect to use of certified colors, and an understanding of available coloring materials.

"A SYMPOSIUM on Raw Materials for Floor Waxes" was prefaced by remarks of the discussion leader, Melvin Fuld, of Fuld Bros., Baltimore, regarding the carnauba wax situation. He told of the swift rise in prices occasioned by the lifting of ceiling prices on carnauba wax, as well as the chaotic condition of the market that resulted from OPA action. He gave the background information on lifting of carnauba ceiling prices, and told of the work of the floor wax manufacturers committee of N.A.I.D.M. Mr. Fuld then read an

official OPA interpretation of the reasons for lifting carnauba price ceilings. One of the main effects was to cause wax already afloat to be held for higher prices, Mr. Fuld asserted. He also indicated that the W.P.B. had a lot to do with removing carnauba price ceilings.

As a result of the difficulty encountered with carnauba, Mr. Fuld recommended that floor wax manufacturers should make every effort to "throw off the yoke of importation." He then introduced the participants in the symposium: Miss Helen Russell, of Mellon Institute, Pittsburgh; Warren F. Leary of W. M. Allison Co., New York; Joseph Green of Oil Specialties & Refining Co., Brooklyn; A. C. Pabst of Socony-Vacuum Oil Co., New York, and Charles T. O'Connor of Durez Plastics & Chemicals, Inc., North Tonawanda, N.Y.

Among the questions asked and answered during the symposium were: Are any synthetic resins used in wax emulsions now? This was answered affirmatively, and it was added many synthetics, particularly of the phenophenolic types are used in wax emulsions. Another question was: "Must all synthetic resins be melted with carnauba wax before emulsification?" And the answer: "Yes, the resin has to be emulsified or in a solvent or has to be melted with carnauba wax to get a rubless polish emulsion." As to the question of making a carnauba substitute, it was pointed out that a substitute could be made but the same result would not be achieved without carnauba. Mr. Green pointed out that he was not too pessimistic about a carnauba substitute. He said that he had seen a sample of a substitute vegetable wax which has not been tried before, and for which he held out some hope.

Another question dealt with the maximum amount of synthetic resin that can be used in a wax emulsion. Up to 50 percent, depending on the quality of the end product desired was given, although a figure of 60 percent was also suggested, based on the amount of carnauba wax. Other questions dealt with the effect of the hardness of a resin on its melting point; changing the amount of emulsifier when using a synthetic resin; the tendency of resin to be tacky when 50 percent figured on carnauba content is used, and the scratching of synthetic resin waxes. A negative reply was given in reply to the question of whether or not there were any new emulsifiers or emulsifying techniques.

Clarence L. Weirich, C. B. Dolge Co., Westport, Conn., chairman of the disinfectant section, gave a report of the work of his committee. The Disinfectant Scientific Committee held six meetings during the past year, at which 25 to 60 persons met and discussed scientific testing methods, he said. Mr. Weirich was followed by Dr. E. G. Klarman, of Lehn & Fink Products Corp., Bloomfield, N.J., who presented a paper, on which he had collaborated with E. S. Wright: "An Inquiry into the Germicidal Performance of Quaternary Ammonium Disinfectant." The paper appears elsewhere in this issue.

At the Tuesday morning, Dec. 4, session W. C. Geagley, Michigan State Chemist, Lansing Mich., discussed "Insecticide Labeling." In his talk he declared that insect pests are one of the biggest problems with which agriculturalists are faced. The reason for labeling, he declared, is for the protection of the consumer. One of the questions with which labeling authorities are now faced is whether or not a distinction should be made between agricultural and household insects, he said. Thus, perhaps a distinction should be made between economic poisons and household insecticides, he indicated. Looking upon labeling laws from the standpoint of the consumer one can see that the consumer has no way of protecting himself in the matter of purchasing insecticides unless they are properly labeled, the speaker asserted. Manufacturers buy on specification so that their product can be made efficiently for the public. It costs money to produce a standardized product and to maintain an organization necessary for its production and distribution. These costs are passed on to the consumer, the speaker declared. In order adequately to protect his crop the farmer needs to know the make-up of the products he buys. He has no way of passing the cost involved in the loss of a crop, for example, on to his customer.

From the insecticide manufacturers' standpoint, Mr. Geagley declared, truthful labeling is one way to build a lasting business. If products are not labeled properly, purchasers cannot discriminate between them. In the case of poisonous insecticides, the public is entitled to the benefit of any doubt, the speaker asserted. In the matter of economic poisons, the farmer is encouraged to use large amounts on the crop and later required to remove them thoroughly from his produce. This is the farmer's dilemma, Mr. Geagley stated. He concluded by urging uniform state labeling laws which should be worked out in cooperation with the Federal government.

Also discussing labeling was Henry J. Hoffman, of the Minnesota Department of Agriculture, who stated that all laws are for the protection of the public. Regulatory officials, he said, much prefer a cooperative relationship with manufacturers. He then discussed the new, 1945 Minnesota law regulating the sale and labeling of insecticides. He admitted that manufacturers might have difficulty with the labeling provisions of the new law, which requires labeling of economic poisons as toxic. This includes DDT, he pointed out. In his state, Mr. Hoffman declared, users protested against three percent DDT in an oil base spray since they got the same results with oil base fly sprays. He further indicated that he felt that uniform state laws are necessary. At the present time, he reported, his state was spending most of its law enforcement funds on inspecting food processing plants.

THE next phase of the NAIDM program was a scientific forum on insecticides. It ranged in scope from questions of marketing and sales to technical aspects of insecticides. F. C. Nelson, of Stanco, Inc., New York, chairman of the insecticide scientific committee, acted as chairman of the forum. The first speaker, L. W. Jones of McCormick & Co., Baltimore, and chairman of the insecticide mar-

keting committee of the Association, spoke on the "Marketing Situation of Today." He pointed out that the "spotty" packaging materials supply situation would have an effect on the marketing of insecticides for some time. The corrugated container situation was improved, he said, but the continuing shortage of tin had made it impossible to raise can production sufficiently high to meet all the demands for cans. At the same time, Mr. Jones stated, sprayer manufacturers have not been able to meet the demand for their product on account of reduced tin supplies. As for the marketing of insecticides, the speaker pointed out that it now appears there will be two types of AA grade DDT sprays sold. One will be the AA grade type with pyrethrum or a synthetic added to not more than one percent and not less than one-quarter of one percent DDT. The other will be a residual type spray containing not less than five percent DDT. In its application the first type will not differ much from sprays with which the consumer is now familiar. The latter type, because of an extended residual factor, will depart in its application from sprays known heretofore. Mr. Jones then went on to elaborate the presently recommended methods of application of the two new types of spray.

F. C. Nelson, chairman of the Insecticide Scientific Committee, reported on the work of his group in "Technical Problems Related to Insecticides." This talk was in the nature of a progress report on testing methods that the insecticide scientific committee has been working on for the past two years. Because of the lack of time and war problems and a shortage of personnel, the committee had not completed its project, Mr. Nelson stated, but added that the committee would continue until it had done so. He outlined some of the many difficulties facing the group and reported that the committee had decided not to test residual DDT sprays by the Peet-Grady method.

The scientific forum continued with a talk by R. O. Cowin of Standard Oil Co. of Ohio, on "Household Insecticides of the Future." Mr. Cowin's discussion took the form of a series of questions relating to DDT, which he put to various people in the audience. Among these were: "Does a five percent DDT oil base spray leave quite a visible residue on walls, ceilings and drapes? Such a spray can be seen on dark backgrounds, glass, Bakelite, etc., was the way the question was answered. To the question,—Is such a residue objectionable in a household fly spray and will it hurt customer demand, the answer was given that it would be if the residue were sufficiently great. It was suggested that the label should caution against spraying wallpaper. In reply to another question dealing with a visible spray residue on screens, etc., the opinion was offered that such a residue would also be objectionable.

Mr. Cowin then asked what percentage of DDT would be safe to use in a household fly spray that (a) would not be dangerous, (b) would not leave a visible residue, and (c) would be effective? One-quarter of one percent DDT with other toxicants was the answer given. What can be done to correct DDT's incorrect publicity, i.e., five percent is the best percentage in a spray? The answer given was that both the Government and industry have a big responsibility in this respect. Industry must do a job of teaching the public the best ways to use a DDT residual spray and to show the difference in application between a DDT residual and a space spray.

The next speaker, Dr. Alfred Weed of John Powell & Co., New York, discussed "Labeling of Insecticides." In his talk he stated that an oil base DDT insecticide containing as little as one percent DDT should carry a precautionary label. In the case of powders he said he felt that the question was not pertinent. The question of the proper terminology to use in mentioning the base oil where ingredients are listed was also discussed by the speaker. In one state, Colorado, it was pointed out, a "fair grade" of kerosene and a "trace" of DDT can be referred to as "100 percent active ingredients." In answer to the question: "How do I label my product correctly if it is an AA grade fly spray with three percent DDT added?" It was stated that the only difference is that for the fly spray with the DDT added claims might be made for some residual value. Other questions dealt with the position of the poison label on containers where needed and ingredient statements.

Dr. A. H. Goddin, of the Du Pont Experimental Station in Wilmington, spoke on "Testing and Standardization of Fly Sprays." He pointed out that it was difficult to define fly sprays since there are various types of insecticides that will control both flying and crawling insects. He stated that he felt some effort should

(*Turn To Page* 139)

NEW FEDERAL INSECTICIDE ACT

A NEW proposed federal law regulating the marketing of insecticides and other economic poisons and devices has been introduced into the House of Representatives and was referred to the Committee on Agriculture. It is referred to as the "Federal Insecticide, Fungicide and Rodenticide Act" and is intended to replace the Insecticide Act of 1910 one year after enactment. It deals at considerable length with various forms of adulteration and misbranding and prescribes penalties for violations. Provision is made for paid registration of all products covered by the act. The new law as proposed prohibits sale except in original unbroken containers. Because of space limitations, the full text of the bill is not reproduced here, but copies may be obtained from the U. S. Department of Agriculture, the National Association of Insecticide & Disinfectant Manufacturers or the Agricultural Insecticide & Fungicide Association. Hearings will undoubtedly be held in the near future before the Committee on Agriculture.

Rate your container, Mister!

1. Put your package on the desk in front of you. Look it over. Try to estimate its eye appeal, its *interest to your customers*. Then pick up your pencil and check at right:

- Highly Attractive ☐
- Interesting ☐
- Fair ☐
- Not So Good ☐

2. Now call in some of your merchandising staff. Talk it over. Try to decide whether your container is as *efficient* as possible. Then check your answer at right:

- Highly Efficient ☐
- Good ☐
- Fair ☐
- Not So Efficient ☐

NOW look over your check marks. If you have marked off *any* box that rates your container less than tops—*do this:*

Pick up your phone and call American Can Company.

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THE INSECTICIDE ACT

. . . and its enforcement

By W. G. Reed*

THE past few months have been the most hectic period the insecticide industry has ever seen. The sudden release of DDT for civilian use in August created many new problems. The public had heard so much about DDT that by the time any of it was available for civilian use about all a manufacturer had to do, to sell his product, for a time at least, was to place the letters DDT on his label. Apparently, the larger and more prominent these letters were, the faster the product sold.

When it became apparent several months ago that DDT would soon be available for civilian use, all of us in the Insecticide Division realized that it would be difficult with existing legislation and available personnel to give the public the protection it was entitled to during the transition period from war to peace.

Enforcement of the Insecticide Act is a rather slow process, since we are required to collect samples of products which have been shipped in interstate commerce and, in many instances, analyze and test them before taking any legal action. Often several months elapse from the time a shipment is made until we are able to accumulate sufficient evidence to take any action whatsoever, even on what may have been a serious violation of the law.

In August we issued a general invitation to manufacturers to submit proposed insecticide labels to us for an opinion as to their legality before placing new products on the market. This was done to prevent as many violations as possible during the emergency. Shortly after this invitation went out we were flooded with labeling inquiries, and ever since that time the volume of correspondence which we have handled has been considerably above normal. On September 1 the trade notice on labeling insecticides containing DDT was issued, and the cooperation of the N.A.I.D.M. in promptly distributing it was a decided aid in publicizing the notice. We have no figures to show how many misbranding violations have been prevented by this program, but we think it has been reasonably effective, as most manufacturers have been very cooperative and have followed the labeling advice which we have given them.

While we have done everything possible to help manufacturers comply with the law, and prevent violations, we have not lost sight of the fact that we are primarily a law enforcement agency. Our investigators throughout the country have been and are busy collecting samples of products that have been shipped in interstate commerce. When violations are found, appropriate action is taken.

I am not in position to tell you how many samples of products containing DDT we have handled in recent months or the number of violations we have found, but I can say that the number of serious violations that we have encountered to date has been fewer than we had anticipated.

We have rceived a number of complaints in recent months from users of insecticides and others concerning the manner in which some products on the market containing DDT have been labeled. In most of these cases fault has been found because manufacturers are not required to state clearly on labels the amount of DDT in their products. Most preparations about which these complaints have been registered have consisted entirely of active ingredients, and the Federal law does not require an ingredient declaration in such cases unless lack of such statement would be misleading. Many manufacturers are now voluntarily placing an active ingredient statement on their labels, and I believe the practice deserves encouragement.

It is unfortunate that the public has received so much confusing information about DDT and the proper strength solutions to use. The Insecticide Division has never raised any question about the use of small amounts of DDT in space sprays in combination with other toxicants. We have, however, objected to statements on labels which would give the impression to users that the preparation contained more of a particular substance than was actually the case.

It seems desirable at this time to discuss briefly the labeling of aerosols. Since they contain an inert ingredient, it is necessary under the Federal law for them to bear on the label a plain and correct statement of the name and percentage amount of each and every inert ingredient,—or, in lieu of this, a plain and correct statement of the name and percentage amount of each of the active ingredients, together with the total percentage of inert ingredients. The proper name to use in the ingredient statement for Freon 12, which is considered an inert ingredient, is dichlorodifluoro-methane. The Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture does not recommend aerosols as the best method of controlling crawling insects. However, our en-

(*Turn to Page* 137)

* Before Natl. Assn. Insecticide & Disinfectant Mfrs., New York, Dec. 3, 1945. Read in Mr. Reed's absence by Dr. E. N. Griffin.

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DDT and the Public Interest

BY

*J. A. Jenemann**

THE public attention given to DDT and insecticides generally by the press over recent months has brought with it problems and responsibilities. This unexpectedly large public interest may be either detrimental or beneficial to insecticide manufacturers, and offers a very definite challenge to the industry. One of my purposes will be to suggest means whereby the public interest can best be served by the NAIDM as a unit and by you as individual manufacturers.

By the time June or July, 1945 arrived, most any layman would have been willing to answer, in a general way of course, the four questions which I discussed last year—

1. What is DDT?
2. What is it good for?
3. How is it used?
4. What precautions, if any, are required?

At this date, however, there are not so many people certain they can answer these four questions. The intervening months, during which the public had its first personal experience with DDT insecticides, brought forth some confusion; and, if this confusion continues to grow, or simply continues to exist, it will certainly not be in the best interest of the public nor help the insecticide industry. Let's look at some of the issues about which there is some confusion; first, from the public point of view.

Safety: That is, safety to the user, to his pets, to plants, and to wildlife.

Effectiveness: Just exactly what is DDT, or, rather a DDT insecticide, good for? Are the results secured in the last few months typical of what is to be expected? or are the products inferior, or the public's use of them improper?

Application: Do you have to be an expert to know how to use the many DDT products? and will the results vary greatly with each individual use? And, of major importance, just exactly what is the best DDT-insecticide? Is the percentage of DDT the criterion to proper results, or is it the form of the insecticide which must be considered?

Brand Named Products: It naturally follows—in what form will DDT insecticides receive the greatest public acceptance?

The recommendations of the various research agencies refer to DDT, xylene, and other ingredients which the public will not see; rather than to commercial products which they will use. How is the consumer to know which of these commercial brand name products is the best for his purpose. While the public would like to buy one all-purpose insecticide and you would like to be able to comply, is it practicable or essential to market a number of specialized types of insecticides in order that we take maximum advantage of the broadening field of usefulness of our products, thereby securing maximum effectiveness?

I presume you are concerned about your competitors: what are they going to do? will there be a number of new competitors? will the old brand names lose their value with public clamor for DDT regardless of the name of the manufacturer or the product which he sells?

Nor have the regulations of the various insecticide acts been too clearly defined or standardized as they pertain to DDT insecticides. This condition has led to a general criticism of the inclusion of some of the petroleum solvents as active ingredients. Can anything be done to clarify these questions? Let us first examine the facts at our disposal—

(1) As a result of the attention given by the press to DDT, the public has shown a phenomenal interest in insecticides.

The public is vastly more insect conscious now than ever before which underscores the fact that there are enough insects making people's lives miserable to arouse great demand when a new weapon is developed to fight them.

(2) DDT has demonstrated it will greatly improve insect control measures. Of course, it is only a raw material and does not replace all the other insecticides; nor, will it control all sorts of insects. This leads to the conclusion there will be a number of products used and they will probably be a combination of materials formulated for specific purposes.

(3) Considerable research data has been provided for the new products made available through DDT, but it must not be assumed this knowledge is complete or, in certain cases, has it been reduced to practice.

(4) Insecticides can be employed safely. Proper use and care is needed in this as well as many other fields. Obviously we cannot assume that carelessness, such as children drinking the contents of bottles, whether they be cleaning fluid, vinegar, alcohol, or insecticides—can be considered coming within the scope of the proper use of any of these materials.

(5) On the negative side, the identification of common insects, their life habits, their action on property or our health, is not well enough known to the public.

* Before annual meeting of NAIDM in New York, December 4, 1945.

Also, the use of residual and aerosol sprays is new, and the public has little knowledge of the true position of these products relative to the conventional space spray. To a certain extent, proper equipment is not in the hands of the consumer for the application of residual sprays.

Taking these facts, and the confusing issues previously pointed out, what can we do to clarify the air?

I BELIEVE *education* is the answer, and this education must be directed to show how better living and health can be secured through the use of insecticides. Each manufacturer individually must carry his share of this educational program. First, he must inspire confidence in his product, by restricting his sales story to claims which can be lived up to. I have stated before that DDT of itself is not the insecticide; therefore, the brand name of the manufacturer's product, if it gives performance, is the best guarantee to the customer that the product which he is buying contains the proper ingredients.

And, these claims must be realistic; that is, not the type of claim that you need throw the entire contents of the package, or even the package itself, at the insect in order to secure control. Let us differentiate between theoretical and practical results. Recommendations as to how applications are to be made are of major importance. That is, are the label and advertising claims which are being made, both specific and adequate as regards for example—use as a space spray or as a residual spray, or the need for repeated applications?

Another phase of the educational program applies to information supplied to the press, and pertains to and concerns representatives of manufacturers as well as the researchers of the federal and state agencies. All information for publication should be readily understandable and realistic. Extravagant statements may make the headlines, but are not in the public interest. Do not give the press only part of the story; for if you do, they will quite naturally assume it is the whole story. The old saying, "A little knowledge is a dangerous thing" still applies.

The recent trend in newspaper and magazine stories has been to show the shortcomings of DDT or to show both sides of the story. Would it not have been better for the industry, if this point of view had existed earlier?

Another example of an educational problem which exists as a result of extravagant claims is the question of DDT and its effect on wildlife. Some of the extravagant claims made for complete kill wherever DDT is applied has led lovers of bird life, for example, to fear that in the future they can expect to see wholesale slaughter of wildlife. Researchers have from the outset realized the need for a sensible approach to any large scale campaign, and a considerable portion of the DDT set aside for experimentation during 1945 was to promote large-scale tests to determine the answers to some of these questions; for such work can only be done on a large scale. This research was done cooperatively by the U.S.D.A. and Department of Interior representatives, the latter's Fish and Wildlife Service being eminent authorities in this field. Such work, of course, is of scientific interest and it is pleasing to note to date that they have indicated fish and wildlife have not been adversely affected where insecticide treatments were *properly* made. From a commercial point of view it can further be stated that wholesale insecticide applications cost money, and expense is therefore a major deterrent, not only to overdosage but to improper treatment.

It is the responsibility of manufacturers to assist in every way possible in providing their customers with correct use information as to how to apply insecticides without injuring valuable insects, plants, and animals. This use information must, of course, be relayed in many cases to the consumer through the manufacturer's distributors, dealers, and the employees who actually contact the consumer.

During 1945 there was considerable public attention given to transmission of diseases by flies, specifically in connection with infantile paralysis. This, of course, is just one phase of the subject. Through our Association I believe we should be conducting an aggressive campaign for improved sanitation. Naturally the Association can not carry out such a program alone; but, since its end result is improved health and sanitation, the various federal and state agencies should be urged to carry on educational campaigns in the same direction and we should assist by supplying information where such is needed.

Another phase of this educational campaign is an understanding of the insects which should be eradicated. And this might well become a part of high school courses dealing with biology. The 1945 experience has indicated that this subject is of lay interest and certainly, as such, in view of its importance to higher standards of living, would be an appropriate one for our schools. In fact, it might be properly termed as domestic science.

I am, of course, not suggesting that the public become their own professional pest control operators. An example of an industry which through education and availability of products has expanded its activity is the paint field. Certainly the average layman is not a master painter, but, without interfering with that group, the layman has learned he can apply ready-made paint and he has an idea of the results he may expect. Certainly the art of painting with its need for adequate preparation of the prepainted surface is more involved than is the application of insecticides. The manufacture of ready-made paints and a creation of the desire to paint has been of benefit to industry and consumer alike.

Summarizing my discussion: I would like to urge insecticide manufacturers as individuals, as well as collectively through the NAIDM, to recognize the need for carrying out a continuing educational campaign on insect pests and insecticides for their control. The aim should be to educate so that consumers will buy and apply insecticides more intelligently. Customer satisfaction depends on "know-how" equally as much as it depends upon product quality. One without the other is useless.

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An Inquiry Into The Germicidal Performance Of QUATERNARY AMMONIUM DISINFECTANTS

By

Dr. E. G. Klarmann and E. S. Wright

Plant Research Laboratory
Lehn & Fink Products Corp.

IT IS a matter of common experience among laboratories engaged in testing disinfectants by means of the F.D.A. technic, that of the several types now available, the disinfectants of the quaternary ammonium class yield inconsistent results not only in the hands of different investigators, but also in those of the same investigator, over a period of time. The problem of achieving consistency in this group of products is being attacked from several angles, one of them aiming at a standardization of the culturing media in the direction of a greater definiteness of the chemical character of the component ingredients (1). It is the purpose of this paper to describe the exploration of another approach, viz., that of an inquiry into the viability of the test organisms following exposure to the action of the disinfectant solutions.

The inconsistency in the test results referred to above depends upon the observation that in the case of the quaternary ammonium compounds the results as to killing or survival of the test organism as a function of the concentration of the compound under test, are far from being clear cut or definite, e.g., in the manner desired by the F.D.A. technic and actually obtainable in the case of phenol, cresol and of certain other alkyl and aryl phenol homologs and substitution derivatives. The bacteriologist's testing records of quaternary ammonium compounds are characterized by the so-called "wild plusses," i.e., indications of bacterial survival where there should be a germicidal effect, and vice versa; in other words there is a profusion of instances where a higher concentration of the tested compound evidently permitted survival and subsequent proliferation of the test organism, while a lower concentration seemed to have had a germicidal effect. Since the F.D.A. testing method generally decides the question of bacterial survival or death by the appearance of the "transfer" tube into which a 4 mm. loopful had been transferred after a definite time interval from the "medication" tube (containing 5 cc of a given disinfectant dilution and 0.5 cc of the broth culture), the question arose as to whether or not this 4 mm loopful actually represents a correct sample of the total volume of the 5.5 cc of the disinfectant-culture mixture present in the medication tube. After all, it was axiomatic that for the purposes of this test, the 4 mm loop inoculum should carry an average number of bacterial cells entirely comparable to that of the medication mixture. But because of the irregularity of the results obtained with the quaternary ammonium compounds, as evidenced by the "wild plusses," a doubt entered our minds as to whether or not the above axiomatic requirement was actually satisfied.

Some important aspects of this question have been touched upon previously by C. M. Brewer (2). In a discussion of the present position of the phenol coefficient method which is official with the Association of Official Agricultural Chemists, he emphasized the following three features of the test as being mainly responsible for its inaccuracies: (a) the inconstancy of the composition of the culturing media and particularly of the peptone, (b) the mutation of the test-organism between the rough and smooth forms, and (c) the variation in the number of the organisms carried into the subcultures by means of the transfer loop as a result of the variation in size of the quantity of liquid picked up by it; the latter factor, in turn, is a function of the surface tension of the preparation tested. Since quaternary ammonium compounds are powerful depressants of the surface tension, it will be recognized that here we may have a source of error of appreciable magnitude.

Incidentally, an analogous situation appears to have been encountered in the case of an anionic material potentiating the antibacterial action of phenol, cresol and phenylmercuric nitrate (3). W. C. Tobie and M. L. Orr called attention to the diminution of the volume of the inoculum owing to the presence of an anionic surface tension depressant; they express their surprise that this important factor has not received its due consideration on the part of certain other investigators who had been working extensively with surface active materials. Instead of the standard loop, Tobie and Orr employed a Kahn pipette for inoculation with 0.02cc. of the medication mixture after having determined that this was the volume of the average drop (of distilled water) picked up by the loop. Using the pipette technic they found that Aerosol OT did not potentiate the

TABLE I

Eb. typhosa —20°C.

DISINFECTANT	ORIGINAL F.D.A. TECHNIC		MODIFIED F.D.A. TECHNIC	
	Minimum Concentration Germicidal in 10 min.	Phenol Coefficient	Minimum Concentration Germicidal in 10 min.	Phenol Coefficient
Phenol	1:80		1:70 (1:80)	
Cresol Compound U.S.P.	1:160	2	1:140	2
Cresylic Disinfectant (declared p.c. 5)	1:500	6.2	1:400	5.7
Synthetic Phenolic Disinfectant (declared p.c. 5)	1:600	7.5	1:500	7.1
Synthetic Phenolic Disinfectant (declared p.c. 10)	1:800	10	1:700	8.7
Pine Oil Disinfectant (declared p.c. 4)	1:300	3.7	1:150	2.1
Coal Tar Disinfectant (declared p.c. 7.5)	1:700	8.7	1:400	5.7
Dodecylamine (10%)	1:1500	18.5	1:300	4.2
Quaternary Ammonium Compound A (10%)	1:1500	18.5	1:300	4.2
Quaternary Ammonium Compound B (10%)	1:800	8.8	1:100	1.2
Quaternary Ammonium Compound C (10%)	1:1500	18.5	1:100	1.2
Quaternary Ammonium Compound D (0.1%)	1:15	0.18	1:2	0.03

Before the Dec. 3rd meeting of the National Association of Insecticide and Disinfectant Manufacturers, Inc., New York York, Dec. 3, 1945.

action of germicides to quite as great a degree as when the transfer loop was employed.

The First Modification of the F. D. A. Procedure

WE were not satisfied, however, that the decrease in the size of the transfer was the sole determining factor in this picture. It was decided, therefore, to ascertain the condition of the entire volume of the disinfectant culture mixture in the medication tubes, rather than to rely upon any small sample of it to yield the desired information. To culture the entire 5.5 cc. of such a mixture would have required very large quantites of broth which would have rendered the entire procedure very cumbersome, as we found out actually on the basis of a few such experiments. This is why we resorted to a "semi-micro" modification of the F.D.A. technic, employing one-tenth of the quantities for "medication" required by the original method; i.e., we used 0.5 cc. of the disinfectant dilution and 0.05 cc. of the broth culture instead of the 5 cc. of the former and 0.5 cc. of the latter. However, since for the equivalent of the "transfer" we now had a volume some 25 times greater than that represented by the 4 mm. loop, we used at first 20 cc. of broth to dilute the "medication" mixture after the given intervals, instead of 10 cc. We discovered early that the procedure as described was suitable for *Eb. typhosa*, but not for *Staph. aureus*. In the case of the latter test-organism considerably greater quantities of broth had to be used in order to suppress the very marked bacterio-static action of the quaternary ammonium compounds.

The complete details of the modified procedure with *Eb. typhosa* as test-organism are as follows:

Using a sterile 1 cc. pipette, carefully place 0.5 cc. of the diluted germicide at the bottom of each of three series of sterile 25 x 150 mm. tubes to allow for the required testing periods of 5, 10 and 15 minutes, respectively. Place one series of tubes in a water bath at 20°C. and allow them to come to this temperature. Using a 1 cc. pipette add 0.05 cc. of a 24 hour broth culture of *Eb. typhosa*. (Hopkins) to each tube by tilting the tube and placing the inoculum directly above the level of the solution. Because of the smallness of the liquid volume, care must be taken not to touch the sides of the test tube with the culture except in this one place. Now tilt the tube back so that the solution runs over the spot of inoculation and shake several times to ensure thorough mixing. Return the tube to the water bath and inoculate each succeeding tube in the same fashion. At the end of five minutes pour 20 cc. of sterile broth into the first series of tubes, using the aseptic technic; this is done conveniently from prepared tubes containing 20 cc. of F.D.A. broth. Repeat the entire procedure for the 10 and 15 minute intervals. Incubate all tubes at 37°C. for 48 hours. Examine them for growth at the end of this time and make smears from the highest concentration of each series showing growth in order to make sure that no contamination occurred in the course of the pouring process. (The test-organism may be identified also by macroscopic slide agglutination with anti-typhoid serum.)

There is one possible pitfall in this technic. If careful mixing of the disinfectant solution and of the bacterial culture is not carried out, or if the pipette is allowed to touch the side of the test tube in another spot not reached by the solution, there will be some live untreated bacteria in the medication tube. However, having run many tests we have learned that these possible errors are easily overcome with a little caution and that they do not affect the accuracy of the testing procedure. Moreover, we have run many tests with phenol and obtained consistently a sharp end point with no "wild plusses," which differs but little from that obtained by the regular F.D.A. procedure.

Comparative Results

THIS technic was applied to several disinfectants of different classes. The findings are given in Table I.

The results of Table I indicate a slightly greater resistance of *Eb. typhosa* to phenol when tested by this modification of the F.D.A. technic; the same is true in the case of the Cresol Compound U.S.P., of a cresylic disinfectant with a declared phenol coefficient of 5 and of two synthetic phenolic disinfectants with declared phenol coefficients of 5 and 10, respectively. An apparent slight change in resistance under the conditions of the modified F.D.A. technic should not be surprising if one remembers that the size of the bacterial sample is more than 25 times that employed in the regular F.D.A. test. An appreciably greater apparent resistance of the test-organism is observed in the case of a pine oil disinfectant (declared phenol coefficient 4) and in that of a coal tar disinfectant (declared phenol coefficient 7.5).

The most surprising results were obtained with four different quaternary ammonium compounds and with a long-chain alkylamine which seems to behave in an analogous manner. Thus one of the quaternary ammonium compounds (C) which by the regular F.D.A. technic would seem to be germicidal to *Eb. typhosa* in a dilution of 1:1500, by the modified technic was found to be effective only in a dilution of 1:100, denoting a drop from a phenol coefficient of 18.5 to one of 1.2. Similarly spectacular drops were registered by three other quaternary ammonium compounds and by dodecylamine (which was employed as the soluble lactate).

Although we saw no reason why in the case of the quaternary ammonium compounds, working with proportionately reduced quantities of disinfectant dilutions should have yielded results so vastly different from those obtained when operating with the full proportions required by the original F.D.A. technic (when no such discrepancies were evident e.g. in the case of phenol and of certain other disinfectants) we decided nevertheless to run a few tests employing the full proportions of 5 cc. of disinfectant solution and 0.5 cc. of broth culture, but subculturing this mixture in 200 cc. of broth after the required time intervals of medication. At best this is a highly cumbersome procedure, but we applied it for the sake of checking the findings given in Table I. These results are given in Table II with two of the quaternary ammonium compounds listed in Table I, viz., A and D. They are

TABLE II

Eb. typhosa —20° C.

	ORIGINAL F.D.A. TECHNIC		CULTURING TOTAL 5.5 cc. of F.D.A. MEDICATION	
DISINFECTANT	Minimum Concentration Germicidal in 10 min.	Phenol Coefficient	Minimum Concentration Germicidal in 10 min.	Phenol Coefficient
Phenol	1:80		1:70	
Quaternary Ammonium Compound A (10%)	1:1500	18.5	1:300	4.2
Quaternary Ammonium Compound D (0.1%)	1:15	0.18	1:2	0.03

TABLE III

Eb. typhosa —20°C.

	ORIGINAL F.D.A. TECHNIC			MODIFIED F.D.A. TECHNIC	
DISINFECTANT	Minimum Concentration Germicidal in 10 min.	Phenol Coefficient	Vol. of broth added	Minimum Concentration Germicidal in 10 min.	Phenol Coefficient
Quaternary Ammonium Compound A (10%)	1:1500	18.5	40 cc.	1:200	2.8
Quaternary Ammonium Compound B (10%)	1:800	8.8	100 cc.	1:25	0.3
Quaternary Ammonium Compound C (10%)	1:1500	18.5	20 cc.	1:100	1.2
Quaternary Ammonium Compound D (0.1%)	1:15	0.18	100 cc.	A dilution of 1-1000 which is the commercial form permitted growth of *Eb. typhosa*.	

a matter of "KNOW-HOW"

To those who surmise that it is child's play to perfume an insecticide so that the unpleasant killer odor and the covering perfume have the same life span — we enter an emphatic "No!" It is an exacting process requiring long experience — one for which our exceptionally skilled perfume-chemists have established a reputation. You will be pleased with their work

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entirely comparable to those obtained by the modified technic employing one-tenth the quantities of disinfectant dilutions and broth culture.

Incidentally we found that the minimum germicidal concentrations of three out of four quaternary ammonium compounds and of the long-chain alkylamine (from which the phenol coefficients are calculated) exhibit bacteriostasis upon dilution with 20 cc. of F.D.A. broth. This quality is evidenced by their refusal to support growth upon inoculation with a loopful of an *Eb. typhosa* broth culture of the tubes showing a negative appearance after incubation for 48 hours. Because of this finding, the conclusion appeared warranted that the true germicidal concentrations may be even higher than those ascertained by that modification of the F.D.A. technic which calls for the use of 20 cc. of nutrient broth to stop the germicidal effect and to promote the proliferation of the surviving cells.

With this in mind, we were interested in creating such conditions as would eliminate bacteriostasis. From the information which we had on hand it was comparatively easy to calculate the amount of broth necessary to prevent bacteriostasis. For a true picture there should always be an excess of broth above the amount actually proved necessary by testing, as it is possible that a healthy *Eb. typhosa* may survive conditions which one damaged by a germicide will not. Using lower dilutions of the germicides and larger quantities of broth we obtained the results given in Table III.

These results show that if the bacteriostatic action is eliminated through adequate dilution, the effective germicidal concentrations increase and the corresponding phenol coefficients decrease still further in the case of the disinfectants A and B, as compared with the figures given in Table I. As for the quaternary ammonium product D, this material which had been procured in the open market as a 0.1 per cent (1:1000) aqueous solution actually permits the growth of *Eb. typhosa*.

Experiments with Staph. aureus

AS pointed out before, we learned at an early stage of this work that *Staph. aureus* was even more susceptible to the bacteriostatic action of the quaternary ammonium compounds than *Eb. typhosa*. In order to adapt our modification of the F.D.A. technic to this peculiarity we proceeded as follows:

Again 0.5 cc. of diluted germicide was used and placed in the bottom of a triplicate set of tubes. Then 0.05 cc. of a 24-hour broth culture of *Staph. aureus* was added, followed by thorough mixing at 20°C. However, at the end of the medication period the tube was first filled with broth from a bottle containing 200 cc. of it, then shaken and finally emptied back into the bottle. The contents of the bottle were thoroughly mixed and the tube refilled from the bottle. Both tubes and bottles were incubated for 48 hours. Of course, this pouring procedure magnifies the risk of contamination; however, here too, our phenol control with *Staph. aureus* turned out satisfactorily, showing only a slight difference from that specified by the F.D.A. method. The following Table IV illustrates the striking difference between the results obtained respectively by the regular F.D.A. technic and its modification.

TABLE IV

Staph. aureus —20°C.

	ORIGINAL F.D.A. TECHNIC		*MODIFIED F.D.A. TECHNIC*	
DISINFECTANT	*Minimum Concentration Germicidal in 10 min.*	*Phenol Coefficient*	*Minimum Concentration Germicidal in 10 min.*	*Phenol Coefficient*
Phenol	1:60		1:50	
Quaternary Ammonium Compound A (10%)	1:2000	33.0	1:500	10.0
Quaternary Ammonium Compound B (10%)	1:2000	33.0	1:500	10.0
Quaternary Ammonium Compound C (10%)	1:3000	50.0	1:1000	20.0
Quaternary Ammonium Compound D (0.1%)	1:50	0.83	1:5	0.1

Yet even the large volume of 200 cc. of broth used to dilute the reaction mixture of disinfectant and culture did not prove sufficient to suppress the bacteriostatic action of the quaternary ammonium compounds as shown by subsequent inoculation with *Staph. aureus* and incubation of the tubes, derived from the lowest concentrations of the disinfectants and showing a "negative" appearance, following a 48 hour incubation. It appears that just as in the case of *Eb. typhosa*, the negative tubes containing the lowest "effective" concentration could also harbor live microorganisms which would have been prevented from multiplying owing to the bacteriostatic action of the quaternary ammonium compounds. This means in turn that the minimum germicidal concentrations given in Table IV need not be the lowest, and also that the phenol coefficients may be even lower than stated. Incidentally the results given are of a somewhat approximate character because of the comparatively large intervals between the dilutions used.

Confirmatory Tests

ATTEMPTS were made to determine the number of bacteria surviving in the samples prepared by our modification of the F.D.A. method. Thus 0.5 cc. of the diluted disinfectant was placed in the bottom of a 25 x 150 mm. test tube, and 0.05 cc. of a broth culture of *Eb. typhosa* added. At the end of 10 minutes, 20 cc. of agar at 45°C. was poured over this, mixed with a swab (care being taken to rub the sides of the tube), and poured into a Petri dish. A great number of colonies—far too many to be counted—appeared in dilutions which had yielded negative results by the regular F.D.A. technic. Another test was made using 5 cc. of diluted germicide and 0.5 cc. of a culture of *Eb. typhosa*. At the end of ten minutes this was poured onto the hardened surface of agar in a Petri dish. When this test was done with the quaternary ammonium compound C, a 1:500 dilution, which was the lowest tested, showed many colonies while in higher dilutions the plates carried solid masses of growth. Yet dilutions of 1:500, 1:1000 and sometimes 1:2000 give negative results by the regular F.D.A. technic. In the case of the quaternary ammonium compound A the bacteriostatic effect was more evident as was to be expected, and only one colony appeared when plating the 1:1000 dilution. In higher dilutions the bacterial growth covered the plates solidly. And yet this compound frequently yields negative subtransfer tubes by the F.D.A. technic, from a 1:2000 dilution.

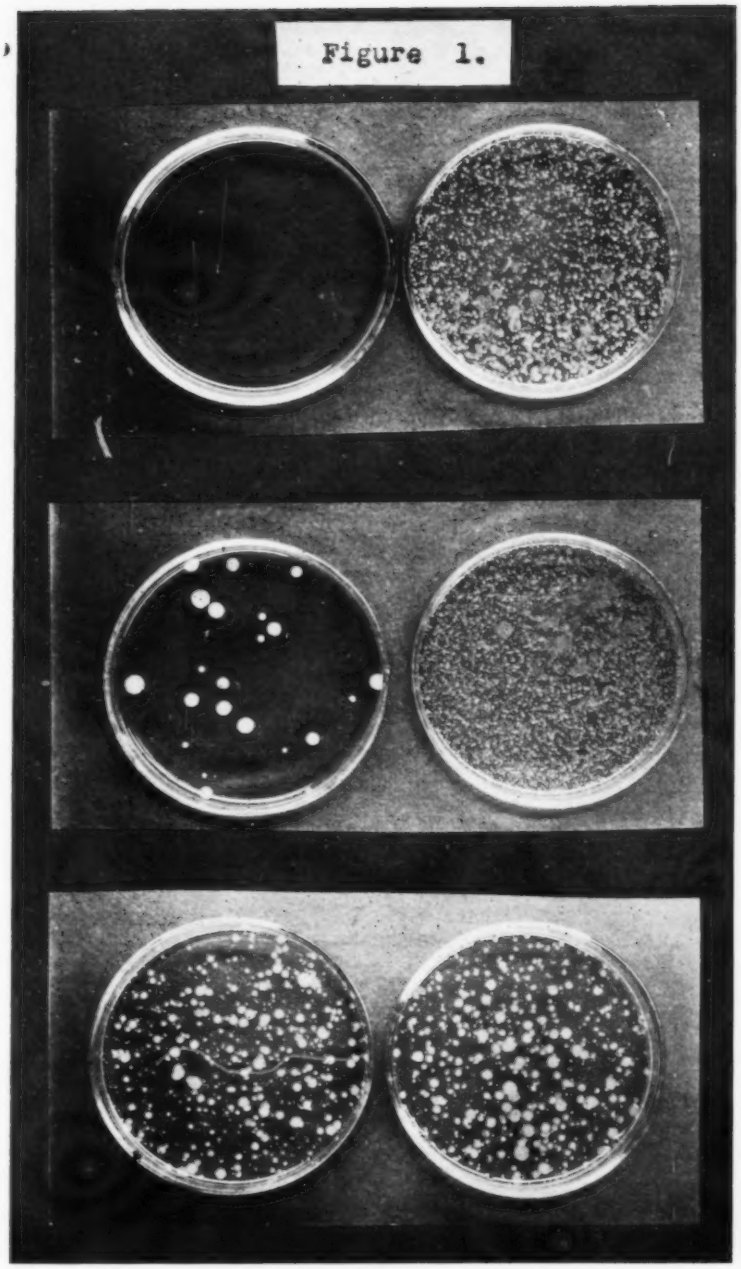
Exploratory Experiments

THE experiments described thus far show, among other things, that the regular F.D.A. technic evidently is inapplicable to the testing of quaternary ammonium compounds, one of the reasons being that the 4 mm. loop employed in making the transfers does not carry a representative sample of the disinfectant-bacteria mixture. We were interested in determining the cause of the phenomenon and decided to pro-

TABLE V

Pseudomonas aeruginosa

Disinfectant	*Number of Colonies After 10 Minutes*	
Quaternary Ammonium Compound A (10%)	*0.05 cc.*	*Glass Strip*
1:400	0	0
1:500	5	510
1:700	37	1390
1:800	23	11000
1:900	780	Plate overgrown
1:1000	320	Plate overgrown
1:1200	8000	Plate overgrown
Phenol		
1:80	0	0
1:90	0	0
1:100	9200	8900



ceed from the hypothesis that in the presence of the quaternary ammonium compound, for some reason the viable bacterial cells were not uniformly distributed in the liquid, but that they were massed against the walls of the tubes, thereby preventing an average sample from being picked up by the loop when employing the technic of the F.D.A. testing procedure. We theorized that this unequal distribution of the viable cells within the reaction mixture might be the result of the powerful surface activity of the quaternary ammonium compounds, or that it followed upon a neutralization of the negative charges of the suspended viable cells by the quaternary cations, resulting in the formation of a precipitate with a strong tendency to adhere to the solid surfaces. The ideal way to prove such an assumption would have been furnished by culturing separately the wall portion and the middle portion of the mixture in the medication tube. Unfortunately, this seemed impractical of accomplishment. However, we conceived of a technic in which a glass strip placed in the medication tube would act as a removable wall which could be lifted out of the tube for cultivation.

Two conditions had to be satisfied to permit the demonstration of such an effect. If surface activity actually played a part in it, then the active agent had to be used in a sufficient concentration for an effective depression of the surface tension. Secondly, the test-organism would have to withstand the required high concentration to a sufficient degree. This is why we began with *Pseudomonas aeruginosa* as the test-organism which possesses the additional advantage of being Gram-negative and, therefore, probably less susceptible to bacteriostasis by the quaternary ammonium compounds. In working with this microorganism the method of testing was made to agree as closely as possible with the F.D.A. technic with respect to the relative proportions of disinfectant solution and broth culture employed. The details of the procedure are as follows:

Fifteen cc. of diluted quaternary ammonium compound A was placed in sterile test tubes containing 10 x 38 mm. glass strips. The strips were completely covered with the disinfectant solution. The tubes were placed in a water bath at 20° C., then 1.5 cc. of a 24 hour broth culture of *Pseudomonas aeruginosa* was added and the tubes shaken thoroughly. At the end of 10 minutes, 0.05 cc. of the bacteria disinfectant mixture was withdrawn by pipette and plated in 20 cc of F.D.A. agar; the volume of 0.05 cc corresponds to the quantity of fluid adhering to the glass strip. The glass strip was removed within 10 seconds and plated in 20 cc of F.D.A. agar. All plates were incubated for 48 hours at 37° C., at which time colony counts were made. They are given in Table V.

These results, for the first time, confirmed our suspicion that, indeed, the manner of withdrawing the sample from the medication tube is of utmost significance. They show also that the bacteria treated with the quaternary ammonium disinfectants have a tendency to attach themselves to solid

TABLE VII

Eb. typhosa

Disinfectant	*Number of Colonies After 10 Minutes*	
Quaternary Ammonium Compound A (10%)	0.05 cc	*Glass Strip*
1:1000	0	236
1:1500	5	1360
1:2000	39	5480
1:2500	4500	14000
1:3000	3000	17000
1:4000	Too numerous to count	Too numerous to count
Phenol		
1:80	0	0
1:90	0	0
1:100	35	32
1:110	2200	1890

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surfaces rather than remain uniformly suspended in the medication mixture. This is clearly evident in the higher concentrations which indicate a very marked discrepancy between the number of organisms transferred respectively by means of the pipette and the glass strip. In striking contrast, the results obtained with the phenol control are practically the same regardless of the transfer method employed. Fig. 1 illustrates the results obtained with the 1:800 and 1:1000 dilutions of the quaternary compound A, and with the 1:100 dilution of phenol.

With this information before us we were encouraged to apply the same procedure to *Eb. typhosa* as the test-organism.

A slight variation of technic was decided upon to approximate still further the quantitative features of the F.D.A. method, i.e., this time only 5 cc of diluted disinfectant was used instead of the 15 cc employed previously, and only 0.5 cc of culture rather than 1.5 cc. In other respects the technic was the same as in the preceding instance. Under these conditions the glass strip was only half submerged, (following the mixing of disinfectant solution and broth culture when it was wetted completely). The colony counts are given in the following Table VI which again emphasizes the extraordinary difference between the results of the two methods of transfer. Fig. 2 reproduces the appearance of the agar plates obtained with the 1:1000 and 1:3000 dilutions of the quaternary ammonium compound A, and with a 1:110 dilution of phenol.

The cresylic disinfectant (with a declared phenol coefficient of 5) and a synthetic phenolic disinfectant gave results similar to phenol in that there was no significant difference between the colony counts obtained by the two methods.

The same phenomenon was obtained with *Staph. aureus* as test-organism, as shown by the following Table VII (using 5 cc of the various disinfectant dilutions), while the phenol control yields comparable results by both methods. Fig. 3 illustrates the appearance of the agar plates obtained with the 1:2000 and 1:3000 dilutions of the quaternary ammonium compound A and with the 1:90 dilution of phenol.

The Second Modification of the F. D. A. Procedure

OUR search then began for a removable carrier, which would have a large surface area, to carry over a larger sample, and, therefore, yield results similar to those obtained when culturing the total 0.55 cc volume. Filter paper seemed to offer some promise. Whatman's No. 14 filter paper was cut in pieces 10 x 20 mm. With a cork borer a 4 mm. hole was cut in each piece of paper. Three pieces of paper were added to each medication tube (25 x 80 mm.). One piece of filter paper was left unfolded, one was folded in half and the third folded in thirds. This was done in order to prevent the papers from sticking together during the test period. The tubes with the filter papers were sterilized for 2 hours

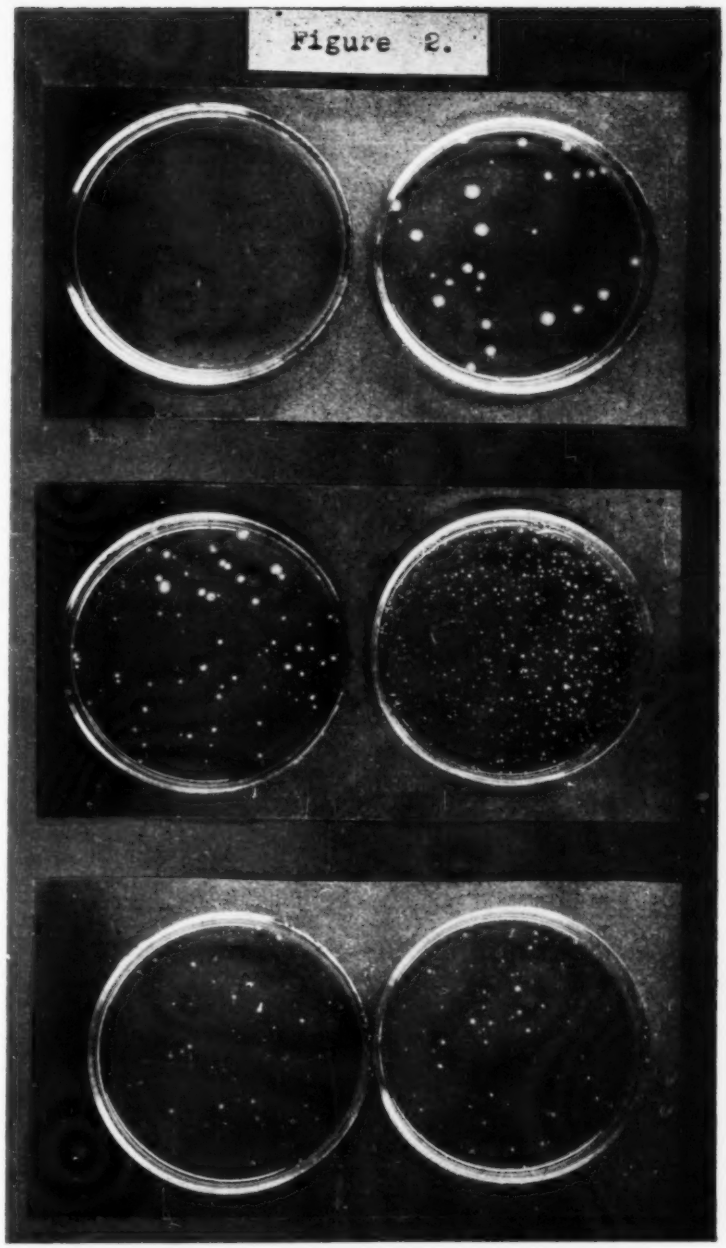
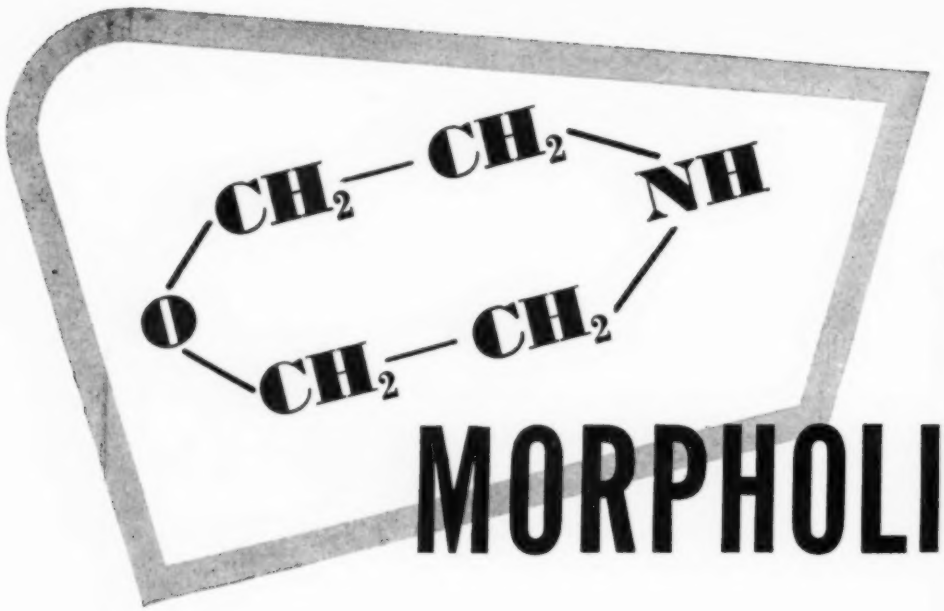


TABLE VI

Staph. aureus

Disinfectant	*Number of Colonies After 10 Minutes*	
Quaternary Ammonium Compound A (10%)	0.05 cc	*Glass Strip*
1:500	0	2
1:1000	0	4
1:2000	0	240
1:3000	210	12000
1:4000	Too numerous to count	Too numerous to count
Phenol		
1:70	0	0
1:80	70	20
1:90	500	700
1:100	Too numerous to count	Too numerous to count



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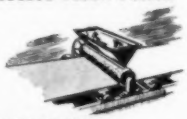
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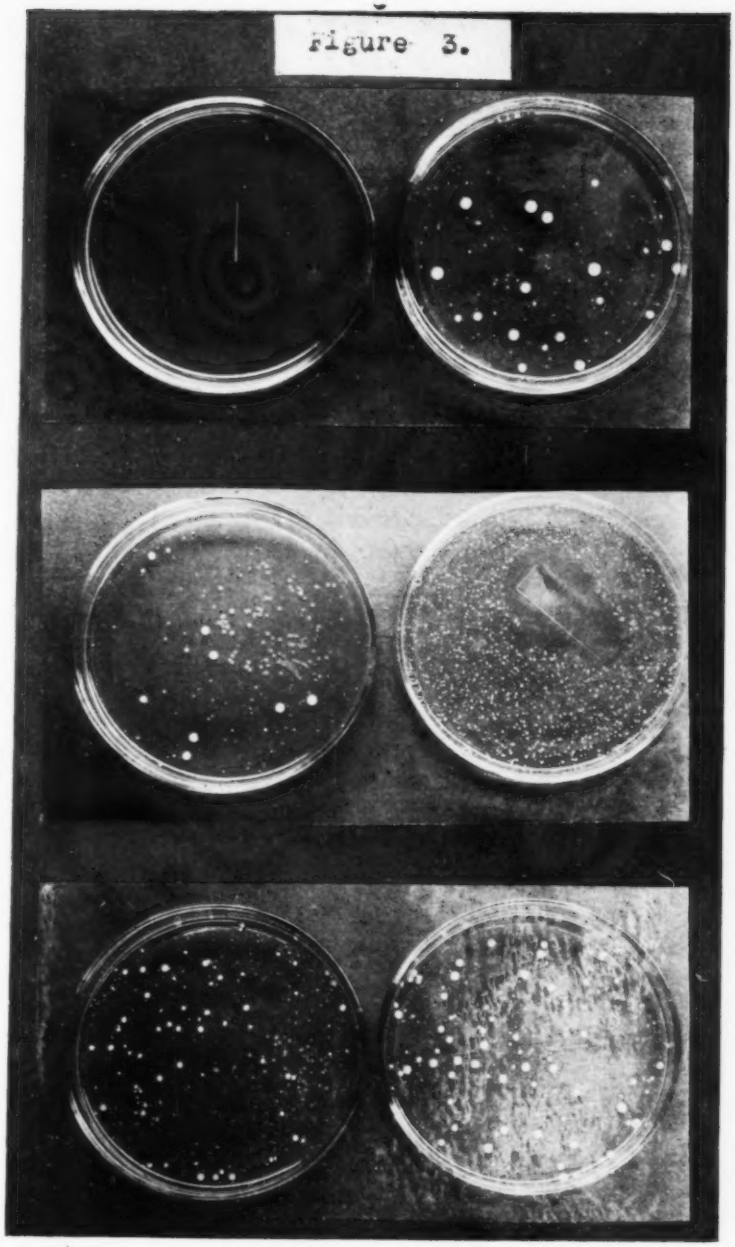

with dry heat at 160 to 170° C. (Great care must be taken to keep the temperature from rising higher as this would cause the filter paper to become hard and less absorbent.)

After several exploratory steps, we finally adopted the following testing procedure:

One-half cc of a 24 hour culture of *Eb. typhosa* was added to each tube, care being taken that each piece of filter paper was thoroughly saturated. Five cc of the various dilutions of the disinfectants was then added to a series of tubes, with thorough agitation. At the end of 5, 10 and 15 minute intervals, respectively, one piece of filter paper was fished out with a platinum hook and transferred to 20 cc of F.D.A. broth. At the completion of the test the filter papers were retransferred to a second tube holding 20 cc of broth in order to eliminate the effect of bacteriostasis. All tubes were incubated for 48 hours.

The accompanying Table VIII shows the results obtained with the several disinfectants when tested in this manner. The readings are those made with the retransfer tubes.

In comparing the results obtained by the "filter paper technic" with those by the F.D.A. procedure, one is struck by the reduction of the apparent disinfectant potency of the quaternary ammonium and long-chain alkylamine disinfectants when tested by the former procedure; no such marked reduction is obtained with the other disinfectants tested although in the case of the coal-tar (emulsifiable) disinfectant it is greater than, e.g., in that of the cresylic formula.

Discussion

IN considering the propriety of using the "filter paper technic" in testing disinfectants, the argument of severity cannot very well be raised against this method for two reasons; first, the quaternary ammonium disinfectants, being potent surface tension depressants should be capable of penetrating materials such as filter paper with great ease; second, most of the other disinfectants tested produce a germicidal effect in dilutions of comparable strength, by either method.

The observations made in the case of the experiments with both the glass strips and the filter papers lead to the conclusion that the suspended bacterial cells enter into some combination with the quaternary ammonium compounds which precipitates them from their suspension and attaches them to carriers (glass, paper, etc.) thus making them practically unavailable for transfer by means of the F.D.A. loop. (Some recent preliminary tests indicate directly that within certain concentrations the quaternary ammonium compounds produce precipitation of the bacterial suspension which is difficult to resuspend by vigorous agitation.) At any rate the bacteria are not killed and they do proliferate again when placed under favorable conditions, and particularly upon elimination of bacteriostasis. One cannot escape the conclusion that when tested by the F.D.A. method, the quaternary ammonium preparations display a vastly greater apparent germicidal potency than they actually possess; this means also, of course, that the original F.D.A. method is hardly suitable for determining the germicidal action of the class of products under discussion.

It should be emphasized here that the above remarks apply only to the germicidal as contrasted with the inhibitory performance of the products tested. At this time our results are not intended for application in connection with the other uses to which the quaternary ammonium compounds are being put, e.g., sanitation of eating utensils, of food processing, equipment, etc., although their revaluation for these purposes appears to be a distinct possibility in the light of the above findings.

As to our original plan, viz., that of devising a method for the determination of the germicidal action of quaternary ammonium compounds, we believe that the "filter paper technic" will lend itself satisfactorily for this purpose, as well as for testing other water-soluble and water-dispersible disinfectants. We are particularly impressed with the elimination of bacteriostasis in tests with *Staph. Aureus* which we found troublesome in our first modification of the FDA method. In view of the existence of the "wet" and the "dry filter paper" procedures described in the Circular No. 198 of the U. S. Dept. of Agriculture, it may be mentioned parenthetically that these methods had been devised for use in connection with water immiscible materials (ointments, pastes, powders, etc.), while our method is in-

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TABLE VIII

Eb. typhosa —20°C.

DISINFECTANT	ORIGINAL F.D.A. TECHNIC Minimum Concentration Germicidal in 10 min.	Phenol Coefficient	"FILTER PAPER" TECHNIC Minimum Concentration Germicidal in 10 min.	Phenol Coefficient
Phenol	1:80	1.0	1:70	1.0
Cresol Compound U.S.P.	1:160	2.0	1:120	1.7
Cresylic Disinfectant (declared p.c. 5)	1:500	6.2	1:350	5.0
Synthetic Phenolic Disinfectant (declared p.c. 5)	1:600	7.5	1:500	7.1
Synthetic Phenolic Disinfectant (declared p.c. 10)	1:800	10.0	1:500	7.1
Pine Oil Disinfectant (declared p.c. 4)	1:300	3.7	1:200	2.8
Coal Tar Disinfectant (declared p.c. 6)	1:700	8.7	1:300	4.2
Dodecylamine (10%)	1:1500	18.5	1:100	1.4
Quaternary Ammonium Compound A (10%)	1:1500	18.5	1:200	2.8
Quaternary Ammonium Compound B (10%)	1:800	8.8	1:10	0.1
Quaternary Ammonium Compound C (10%)	1:1500	18.5	1:50	0.7
Quaternary Ammonium Compound D (0.1%)	1:15	0.18	A dilution of 1:1000 which is the commercial form, permitted growth of Eb. typhosa.	

tended as a direct replacement of the F.D.A. technic of testing soluble or emulsifiable products with the idea of avoiding fictitious findings as to their germicidal potency. Incidentally, this method practically does away with the "wild plusses" which are a common occurrence when applying the original F.D.A. method to quaternary ammonium compounds. It is our intention to study this method further, and to ascertain its fitness for use with other microorganisms as well as with other antibacterial agents.

Summary

VARIOUS modifications of the F.D.A. testing method for disinfectants indicate that bacteria are capable of surviving substantially higher concentrations of four commercially available quaternary ammonium compounds and of an aliphatic long-chain amine than would be indicated by the results of tests obtained when using the regular F.D.A. procedure. From this the inference is drawn that the regular F.D.A. testing method should not be employed with these classes of compounds in order to avoid an entirely erroneous conclusion as to their germicidal potency. Incidentally the so-called "safety factor" which is implied in the officially sanctioned preparation of disinfectant solutions for practical use ("twenty times the phenol coefficient"), is not adequate to compensate for the lack of germicidal power in these concentrations.

The primary reason for this inadequacy of the F.D.A. method, as well as for certain other difficulties attending the testing of this group of compounds appears to depend upon the creation of a condition in the "medication" mixture of disinfectant and bacteria which interferes with the transfer of a representative bacterial sample into the subculture.

It is possible to verify this assumption by means of several modifications of the F.D.A. technic. Two proposed methods appear to lend themselves for a direct and comparative evaluation of the true germicidal potency of this class of compounds, as well as of soluble and emulsifiable disinfectants of other classifications: one of them, viz., the "filter-paper technic" offers considerable promise as an adequate testing method for the different kinds of disinfectants as it allows, among other things, to keep the factor of bacteriostasis under good control.

Our thanks are due to Dr. V. A. Shternov and to Mr. L. W. Gates of our laboratory for valuable assistance rendered in this work.

References

(1) E. G. Klarmann and E. S. Wright; Soap and Sanitary Chemicals, Jan. 1945.

(2) C. M. Brewer; J. A. O. A. C. 27, 554 (1944).

(3) W. C. Tobie and M. Orr; J. Lab. Clin. Med. 29, 767 (1944); 30, 741 (1945).

INSECTICIDE ACT

(*Continued from Page* 119)

tomologists have not offered any objection to manufacturers recommending aerosols for this purpose when the labeling directions, if followed, will result in reasonably effective control of these insects. It is believed that aerosols should bear caution labeling similar to that recommended in our September 1 trade notice for petroleum oil solutions containing not more than 25 per cent Technical DDT.

The Federal law does not require poison labels on insecticides, but it does require that the labeling of such products shall not be misleading. Recommendations for use are considered misleading if they may result in injury to persons or animals involved. Since there is a certain hazard in the use of preparations containing DDT, including aerosols, a caution statement on the label is recommended.

The widespread use of DDT in household sprays has made it necessary that methods be developed for evaluating their toxicity against the more common insects which infest households. The Peet-Grady method of testing insecticides for use against flies and this division's method of testing sprays for use against roaches were devised for testing contact space sprays and do not take into account residual action.

Entomologists seem to think it may be feasible to continue to use these devices and methods to test insecticides containing small amounts of DDT. They say, however, that more care will be necessary to prevent contamination of chambers and cages, and that more time will be needed for the extra cleaning which will be required to avoid contamination. Other tests, or possibly modifications of these tests, will have to be made to evaluate the residual properties of these insecticides. Since DDT alone in oil or water has poor knockdown properties, such sprays will not meet the grade specifications for knockdown, although they may meet those for mortalities over a 24 to 48 hour recovery period. Our entomologist thinks the value of aerosols or space sprays can be determined with reasonable satisfaction in Peet-Grady chambers or in large confined spaces, provided the operator takes care to avoid contamination from continuous use.

Testing the purely residual liquids and powders presents an entirely different problem. These tests must extend over considerable periods of time. Instead of the insecticide being directed on the insects, it must be applied to surfaces upon which insects will walk or alight at some future time. The field for residual methods of application is much broader than

Dignity goes out the window at the 32d annual dinner of NAIDM as retiring president, Henry Nelson, also president of Chemical Supply Co., Cleveland, is unhorsed, — and Melvin Goldberg, now of Geigy Co., New York, and formerly chief of WPB Insecticide Division, just before he too came a cropper.

for space sprays, where repeated contact of the insects themselves is of primary importance. Probably the preparations hardest to evaluate accurately are the "shotgun" products containing DDT and some of the other toxicants, since such products have a good knockdown and kill in most cases and also above considerable residual action.

NAIDM CONVENTION

(*From Page* 117)

be made to standardize the terminology of these products.

In place of the regularly scheduled address of Dr. Ray L. Cuff, regional manager, National Livestock Loss Prevention Board, who was unable to attend the meeting, Dr. S. A. Rohwer, assistant chief of the Bureau of Entomology and Plant Quarantine, spoke extemporaneously. He discussed cooperative tests that had been conducted with DDT cattle fly sprays and declared that these tests were highly successful. However, he cautioned that DDT is only one tool that can be used in controlling flies. There are other good insecticides besides those containing DDT he stated, and added that there will be even better ones in the future. Flies, he said, can only be controlled effectively by getting to and destroying their breeding places. There has been a lot of confusion about DDT and it still exists, he declared. It is not foolproof, but used intelligently, it can be valuable, he asserted. A great deal is not known about how DDT reacts to men and poultry, he stated, and while agreeing that DDT is poisonous, remarked that so are a lot of other insecticides. They have to be, he concluded.

Dr. Rohwer was followed by C. R. Cleveland of Standard Oil Co. of Indiana, who took up the question of "Technical Developments in Livestock Sprays." He prefaced his remarks by saying that he planned to discussed his subject from the standpoint of the middle western and northeastern farmer who use the smaller type sprayers. The farm trade is very much interested in the new residual type barn sprays, he pointed out. Whether or not he thought there would be many manufacturers of DDT sprays, Mr. Cleveland said he believed there would be a large number of firms making these sprays. As to the future of DDT sprays, he stated that the future for them would depend on their effectiveness and satisfaction with them by the user. As a result of the publicity on DDT, the speaker felt it only natural that there would be some disappointment and unfavorable reaction to their effectiveness. As to the types of DDT compositions he thought would be made and sold, Mr. Cleveland listed these three types: Standard kerosene oil sprays containing DDT in solution; water suspended wettable powder type and water miscible DDT concentrations.

"Our Sprayer problems" was the topic of John Powell of John Powell & Co., New York. Briefly, he pointed out that the reason the insecticide manufacturers do not have better sprayers is that they insist on buying cheap sprayers. Better sprayers could be had, he concluded, if the insecticide manufacturers themselves were willing to pay for them.

His paper is published elsewhere in this issue. The meeting closed with a banquet and floor show attended by 400 members and guests at the Hotel Commodore on Tuesday evening, December 4.

◆

Goodhue Joins Aerosols, Inc.

Dr. Lyle D. Goodhue of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agri-

culture, Beltsville, Md., joined the technical staff of Aerosols, Inc., Neodesha, Kansas, on Jan. 1. Dr. Goodhue is widely known for his research developments in aerosol insecticides in conjunction with Dr. W. N. Sullivan of the Bureau of Entomology. Dr. Goodhue graduated from Iowa State College in 1928 and received his Ph. D. in chemistry at the same university in 1934. He had been associated with the Bureau of Entomology for ten years prior to joining Aerosols, Inc. He is the author of numerous papers for the scientific press and the holder of eleven patents. He was the recipient of the 1945 John Scott Award in Philadelphia.

TECHNICAL Briefs

From Current Literature in the Sanitary Products Field

Moth Repellent

Solutions of molecular equivalents of sodium pentachlorophenoxide and guanidine-HCl are mixed at room temperature or slightly above, and a white crystalline precipitate of guanidine pentachlorophenoxide is formed. When mixed with 99 per cent talc it is a good fungicide for seed-borne diseases. Moths are repellent when it is precipitated in and on cloth. V. Migrdichian, to American Cyanamid Co. U. S. Patent No. 2,377,167.

Additive for Insecticides

As an added toxicant in insecticidal compositions containing pyrethrins or rotenone a crotonamide is used, such as *N*-methyl crotonanilide. Crotonamides are relatively insoluble in water but somewhat soluble in many organic solvents. They may be dispersed in any suitable non-corrosive solvent. E. C. Britton, G. H. Coleman and W. D. Schroeder, to The Dow Chemical Co. U. S. Patent No. 2,368,195.

Coke-chemical Larvicides

The larvicidal action of medium-boiling benzene, solvent naphtha, pyridine base, indigo residue, and medium light oil is demonstrated by laboratory and field experiments. These coke-chemical products form thin continuous films at 21-30° C. on the surface of water. The benzene and medium oil films hold for 2-3 hours, and the pyridine and naphtha films hold for 3 or more days. No injury to molluscs or other underwater animals was observed. The benzene and medium oil injured aquatic vegetation, but the naphtha and indigo residue showed no such injury. V. P. Bezzubova and I. A. Tarabukhin. *Med. Parasitol. Parasitic Diseases* (U.S.S.R.) *12*, No. 1, 18-22.

Floor or Furniture Wax

The addition of 1-5 per cent of 2-methyl-2, 4-pentanediol to emulsion paste wax polishes causes a marked reduction in viscosity and increases the spreading property. The desired wax or a mixture is treated with about 5 per cent of an emulsifying agent; the mixture is heated to 100° C. and about 150 per cent of water and 5 per cent of the glycol are added with agitation. The emulsifying agents are derivatives of fatty acids and aliphatic amino monohydric alcohols. The product is suitable as a floor or furniture wax, depending on the formulation. F. E. Dolian, to Commercial Solvents Corp. U. S. Patent No. 2,374,474.

Purification of Pyrethrum

The purification method involves extraction of a petroleum hydrocarbon solution of pyrethrum by a nitroalkane, purification of the resulting nitroalkane solution by passing it through a column of activated carbon, and removal of the solvent to leave a residue high in pyrethrins. Further purification may be obtained by solution of this residue in petroleum ether boiling at 30-60° C., removal of undissolved impurities, and evaporation of solvent. Products of 90-99 per cent purity resulted, with recoveries of 78-90 per cent of the pyrethrins. W. F. Barthel and H. L. J. Haller, to the U. S. Secretary of Agriculture. U. S. Patent No. 2,372,183.

Alkyl Sulfates as Germicides

Branched-chain secondary alkyl sulfates having 10-21 carbon atoms, have marked wetting and detergent properties and are also germicidal. A neutral solution of 1:3000 of the sodium sals of 3,9-diethyl-6-tridecanol strongly inhibits the metabolism of the Gram positive *Staphylococcus aureus*, *S. albus*, *Sarcina lutea*, *Micrococus tetragenus*, and *Lactobacillus*, as well as the Gram negative *Proteus vulgaris*. At a pH of about 4.5-5 the bactericidal action of 0.1-2 per cent solutions of these compounds is enhanced. Formulas are given for an antiseptic and germicidal ointment, a brushless shaving cream, a toothpaste, a liquid dentifrice, a mouth wash, and an aftershaving lotion. Z Baker and B. F. Miller. U. S. Patent No. 2,380,011.

New Germicide and Disinfectant

A new sterilizer and disinfectant wetting agent, developed to sterilize surgical instruments when cold for the armed forces during the war, has been adapted and is now available for commercial use under the trade name "Timsol," it was announced recently by Theo. Ross and Associates, Los Angeles. The new product is a quaternary ammonium compound and is said to be odorless. Its action is bactericidal rather than bacteriostatic. The phenol coefficient of "Timsol" is said to be 22½ to 25 against *E. Typhi* and 45 to 50 against *Staph. Aureus*.

Pest Control Technology

The new pest control technological service to be conducted by the National Pest Control Association in the form of condensed published data is to be inaugurated in the near future. The service which will comprise a series of published manuals covering standards of practice to be supplemented by loose-leaf additions from time to time is available to members of NPCA only. The complete service costs $75.

TRADE NEWS . . .

Ralph Hamilton Joins Trio

Ralph E. Hamilton previously associated with the Breeze Corp., Newark, N. J. and White Tar Division of the Koppers Co., Kearny, N. J. has joined the staff of the Trio Chemical Works, Brooklyn, N. Y. as chief chemist. Trio manufactures chemical specialties at its plant located at 341 Scholes St., Brooklyn. Mr. Hamilton was recently released from the Navy as a chief quartermaster after three years service in both the European and Pacific theatres. He is a brother of Herbert W. Hamilton, also of the White Tar Division of the Koppers Co. and secretary of the National Association of Insecticide & Disinfectant Manufacturers.

Corl Returns to Allaire Woodward

Cady S. Corl, Major CWS, has recently returned to Allaire, Woodward & Co., drugs and insecticide raw materials, Peoria, Ill., after four years of active duty in the Army. During this time Major Corl was in charge of certain large manufacturing and filling units at Huntsville Arsenal. He returns to Allaire, Woodward & Co. in a technical and special sales capacity.

Leonard Leaves OPA

Dr. M. D. Leonard for the past four years in charge of insecticide price control for OPA severed his connection with that agency last month. Dr. Leonard prior to his association with OPA was engaged in technical sales work in the agricultural insecticide field for John Powell & Co., New York. He is at present located at 2480 16th St., N. W., Washington, D. C. and has not announced his plans for the future.

Joseph Heads Bri-Test Research

Dr. S. Brian Joseph has recently been appointed director of research of Bri-Test Products Corp., Newark, N. J., to head a reorganized research and development division. Dr. Joseph is a graduate of Columbia University and received his doctorate at Brooklyn Polytechnic Institute. He has been engaged in consulting work in the metal cleaning field and recently terminated a period of service as municipal chemist for the City of New York.

DR. S. BRIAN JOSEPH

Sanitary Supply Meeting May 26-29

The 23rd annual convention and merchandise display of the National Sanitary Supply Assn. is to be held next May 26-29, it was announced recently by S. J. Bockstanz, president. About 70 booths will be available for display purposes and it is urged that reservations be made immediately by writing Leo J. Kelly, executive secretary at 139 No. Clark St., Chicago 2.

Continental Program Changes

Changes in name and content of the half hour variety program sponsored by Continental Can Co., New York, on Saturday nights over the Columbia Broadcasting System were announced recently. The program, formerly known as "Report to the Nation," will henceforth be known as "Continental Celebrity Club."

Forms Enterprise Paper Corp.

Leo E. Fried, formerly sales manager for twenty-three years for the New York branch of the Sanitary Products and Paper Company Division of Crown-Zellerbach Corp., has just organized his own firm, Enterprise Paper Corp., to deal in paper specialties, sanitary products, building maintenance supplies and wrapping materials. Offices will be located at 220 West 42nd St., New York, with warehouse and siding at 601 West 28th St. Enterprise will act as distributors in the New York area for paper towels, tissues and toilet seat covers made by APW Products Company of Albany.

Test DDT at Walker-Gordon

Tests of the efficacy of DDT in controlling flies in dairy barns have recently been conducted by Dr. John G. Matthysse, entomologist for Geigy Co., Inc., New York, at the Plainsboro, N. J. dairy farm of Walker-Gordon Laboratory Co. The tests indicated that there was a reduction of 97 to 99 per cent in the fly population of sprayed barns as long as 30 days after spraying. At the end of 85 days, however, checks indicated that the spray deposits were no longer effective.

Turner Joins Hammond

Maurice B. Turner, for the past eight years associated with the Dow Chemical Co. for six years at Midland, Mich. and for the past two years in New York, joined the Hammond Paint & Chemical Co., Beacon, N. Y. on December 1 as assistant general manager, according to an announcement by D. B. Faloon, president of Hammond. Mr. Turner has specialized in the sale of bactericides, fungicides and insecticides for the Dowicide Division of Dow. He is a graduate of the University of North Dakota in chemistry, joining Dow upon graduation in 1937.

Clifton in New Offices

Clifton Chemical Co., New York, have recently moved their offices to new quarters at 62 William St. The New York plant will remain at 246 Front St. The new office telephone number is WHitehall 4-5874. Dudley Bachrach is president of the company which specializes in the manufacture of potash soaps and allied sanitary specialties. A New Jersey plant is located at 64 Essex St.

Nelson New Dutch Consul

Henry A. Nelson, president of the Chemical Supply Co., Cleveland, and retiring president of the National Association of Insecticide & Disinfectant Manufacturers has been designated acting consul for Ohio by the Netherlands Government. He took office January 2. Mr. Nelson, an American citizen for the past twenty-five years, is a native of Dordrecht, Holland. He has been an active leader in the mid-west in Dutch war relief and other philanthropies. His appointment as Dutch consul will not alter his active direction of the affairs of the Chemical Supply Co.

Exterminators Honor Buettner

William O. Buettner, of Buettner Pest Control Co., Brooklyn, and secretary of the National Pest Control Association, was guest of honor at a testimonial dinner for him by the Professional Exterminators Association, New York, at the Hotel Brewster, the evening of Dec. 10. Milford H. Oachs, president of the Professional Exterminators Association, presided and presented Mr. Buettner with an attache case. Charles Pomerantz, of Bell Exterminating Co., New York, and a member of the board of directors of the Association, was chairman of the dinner. He read an address in tribute to Mr. Buettner for his work in furthering the interests of the industry, which was later presented to Mr. Buettner in bound form. Also honored at the dinner was Joseph Finneman, the immediate past president of the Professional Exterminators Association, who was presented with a traveling bag.

Packaging Institute Meets in N. Y.

Disclosure of plans for an international packaging exposition to be held in New York early in 1947 in connection with "National Packaging Week," the naming of Major Albin Dearing, AUS, as executive head of the Packaging Institute; and reelection of President Walton D. Lynch and W. O. Brewer and George A. Mohlman as vice-presidents and a citation for the work of the Packaging Institute from Henry L. Wallace, Secretary of Commerce, were the highlights of the recently held seventh annual meeting of the Institute in New York.

Belgian Conference Speakers Sought

Royal Belgian Society of Engineers and Industrialists, on the occasion of its 60th anniversary, is organizing a scientific meeting to be held early in May, 1946. Foreign scientists are being sought to address the meeting in an effort to bring Belgians up to date on developments which took place during the German occupation. The organization is seeking the names of scientists and industrialists who are planning to be in Europe at the time of the meeting so that they may be contacted as possible lecturers for the meeting. The chairman is P. Fontainas, 3 Rue Ravenstein, Hotel Ravenstein, Brusselles, Belgium.

Eastern Pa. PCO's Meet

Reelection of its present slate of officers, and a talk on DDT by Morris K. Perrinchief, of Pennsylvania Salt Manufacturing Co., Philadelphia, were the highlights of the Eastern Pennsylvania Pest Control Association's Dec. 11 meeting at the Lorraine Hotel, in Philadelphia. There was also a discussion of the shortcomings of the existing insurance coverage in the pest control field.

Per-Mo Changes Name

Per-Mo Products Co. is the new name of the Per-Mo Mothproof Co. of Kansas City, Mo., according to O. S. Shaffer, head of the company. Management, ownership, and policies of the company remain unchanged. The reason for the name change is the expansion in products manufactured since the business was founded ten years ago and now including rodenticides, insecticides and other sanitation specialties. The address of the company is 3604 B Woodland Av., Kansas City 3, Mo.

McCauley Rejoins Velsicol

Captain W. E. McCauley, AUS, has returned to his duties as entomologist with Velsicol Corp., Chicago, after three years service with the Sanitary Corps in the South Pacific, the company announced recently.

Coulter Rejoins M & C

Lt. E. V. Coulter, USNR, who has been stationed at Pearl Harbor for about two years and in the Navy Supply Depot in Chicago for the past eight months, has returned to his duties as general manager of M & C Maintenance Co., St. Paul, Minn., manufacturers of floor and carpet machines and industrial vacuum cleaners.

Pyrethrum Health Report

Native workers with pyrethrum in Nakuru, Kenya Colony, British East Africa, show a minimum of health hazards attributable to contact with this insecticide, according to a report recently made by the government's Senior Medical Officer of the Rift Valley Province, Kenya Colony, which stated in part:

"Since July 1944, I have carried out monthly examinations of all the staff handling Pyrethrum in the Nakuru Buildings, about 100 persons examined on each occasion. The general health and physique of the African staff is in my opinion higher than that of the general African population and certainly much higher than that of the recruits for conscripted labour who pass through my hands.

Dermatitis attributable to contact with the oleo-resins of the Pyrethrum Plant has only been seen in one employee.

Specific Allergy. I have not seen one single case which I could definitely attribute to Pyrethrum.

Respiratory Disease due to dust inhalation has been fairly common. As reported by me on 13th October, 1944 this hazard is to be expected with the existing plant. The cases most frequently met are pharyngitis and laryngitis. It is remarkable that the eyes seem to escape, frequently I have seen particles of Pyrethrum dust in the conjunctival sacks of workers which appeared to cause no inconvenience.

The incidence of parasitic skin diseases such as scabies and tinea versicolor is very low among pyrethrum workers. I have frequently observed new labourers suffering from these complaints clear up after working in the factory for a few months. There seems to be no doubt that prolonged contact with the pyrethrum powder cures these conditions in time.

My general conclusions after 15 months work are that, apart from dust, working with pyrethrum is not an unhealthy occupation for anyone except the few who suffer from specific allergy and that among the African tribes employed by the Kenya Pyrethrum Board this condition must be one of extreme rarity."

Eastern Branch AAEE Meets

MEMBERS of the Eastern Branch of the American Association of Economic Entomologists held their 17th annual meeting at the Hotel New Yorker, New York, November 29 and 30, the meeting closing with the election of Harry F. Dietz of E. I. du Pont de Nemours & Co., Wilmington, as chairman for the year 1946. A number of the papers presented by a group of the leading entomological experts from State agricultural colleges and experiment stations dealt with the results of tests on the application of DDT and other insecticides for specific control problems. The reports emphasized that while DDT is being found highly effective for specific applications against certain pests, it is ineffective against others, or at least no better than previous control materials. According to these investigators, numerous unexpected complications and undesirable side results continue to appear, in connection with use of DDT, and there are still no standard methods being recommended for its use.

Among the speakers were the following: H. C. Huckett of the Riverhead, L. I., experiment station; Floyd F. Smith of the Federal research center at Beltsville, Md.; W. A. Rawlins and George Y. Gyrisko of Cornell University; J. W. Heuberger of Delaware Agricultural College; E. H. Wheeler of New York State Experiment Station; B. F. Driggers of New Jersey Experiment Station; W. S. Hough of Virginia Experiment Station; S. W. Harman of the Geneva, N. Y., Experiment Station; L. A. Hetrick of Virginia Experiment Station; R. D. Glasgow and D. L. Collins of New York State Science Service; Hugh L. Glasgow, New York State entomologist; Guy J. Goble and Thomas C. Watkins of Cornell University; Dr. Bailey B. Pepper, head of the entomology department at Rutgers University; Dr. Stanley W. Bromley of the Bartlett Tree Research Laboratories, Stamford, Conn.; Drs. George S. Langford and Ernest N. Cory of the University of Maryland; Drs. Philip Granett and Harry Haynes, Rutgers University; and J. A. Adams and E. H. Wheeler of Poughkeepsie and Geneva Experiment Station.

Dr. Charles L. Smith, technical advisor for the Agricultural Insecticide & Fungicide Association, also addressed the group, pointing out that DDT had brought two problems to the insecticide manufacturing industry. "Its sudden release to the public," he said, "threatened to cause severe interruption of normal advance season purchasing of standard insecticides; distributors and dealers withheld their buying because of uncertainty about what growers would use." This, he said, has been cleared up by an industry survey of the States' planned 1946 recommendations, which showed that "DDT will not affect the overall consumption of standard insecticides next year nor replace more than 25 per cent of any insecticide for a particular crop."

The other problem was the proper and uniform labeling of DDT insecticides for the consumer's protection, to comply with Federal and State laws and to make efficient distribution possible. He outlined a set of principles agreed upon jointly by the industry and Federal officials for labeling DDT preparations with specific cautions, suited to the actual potential hazards of each DDT form—rather than with the indefinite word "Poison" which, according to Federal statements, would not be justified.

Thawley Joins Penick

S. B. Penick & Co., New York, recently announced the appointment of William A. Thawley as their sales representative for Pennsylvania, Maryland, Delaware and the District of Columbia. A licensed pharmacist and a graduate of the Philadelphia College of Pharmacy and Science, Mr. Thawley has been on active duty with the U. S. Navy for the past two and one-half years. He was in command of a P. T. boat and held the rank of lieutenant. For six years prior to his enlistment he was connected with the drug and pharmaceutical industry.

Hindle Returns from Britain

J. L. Hindle, president of Standard Synthetics, Inc., New York, returned to New York recently following a visit to the company's London factory.

Pacific Chemical Co., Los Angeles, recently introduced "Pacific Pronto DDT" insect spray (shown at extreme left) which is being added to the company's line of household cleaning preparations (shown at right).

Dawson Starts Own Company

J. Carl Dawson, formerly head of the fumigant sales division of The Dow Chemical Company, Midland, Mich., has recently established his own

J. CARL DAWSON

industrial pest control and fumigation business in St. Louis, Missouri. Mr. Dawson is widely known for his work at Dow on the development of field methods of methyl bromide fumigation and for his research findings while head of the Missouri State Entomological Department. He was Missouri state entomologist, from 1934 to 1940.

Mr. Dawson is a graduate of the University of Missouri with a Bachelor of Science degree in Agriculture. He joined the Dow fumigant sales division in 1940 when the department was less than a year old and was responsible for much of the development work with new fumigation materials. He became head of the division in 1943.

In St. Louis he plans to offer fumigation service to industries located within a 1,000 mile radius. He will specialize in methyl bromide, but will also use other materials where required.

Vinnicombe Joins McCormick

Edward J. Vinnicombe, Jr., formerly a lieutenant colonel in the Army, and prior to his recent discharge, Provost Marshal and Headquarters Commandant of the Third Service Command, Army Service Forces, is now associated with McCormick & Co., Baltimore, as manager of the Institutional Department and assistant director of the tea department, it was announced recently. He will be associated with J. G. Luttrell, vice-president in charge of the tea department and will head a new department in the company devoted to the development of sales of institutional products in the food and insecticide fields.

Expello Corp. Changes Name

Expello Corp., Dover, N. H., manufacturers of "Expello" moth killer and insecticides and "Vanish" toilet bowl cleaner, recently announced that as of Dec. 1, 1945 the company would be known as Judson Dunaway Corp. This change of name was made to eliminate confusion caused by added products. There is no change in ownership, management or in business policies, according to the announcement.

Sonneborn Advances Two

Irving Silverman, formerly chief chemist for L. Sonneborn Sons, Inc., Nutley, N. J., plant, has been appointed to the newly created position of production manager, the company announced early last month. A. Moscowitz has been named to succeed Mr. Silverman as chief chemist. Effective Dec. 1, Mr. Silverman assumed responsibility for the direction of production and shipping operations at the Nutley plant while Mr. Moscowitz takes charge of technical matters relating to all divisions at the Nutley laboratory, including the textile chemicals research activity in which he had formerly specialized. Coordination of technical and production details between the plant and Sonneborn's general offices in New York are being handled by Dr. Eric Meyer, director of industrial research.

Crown Can Elects Nagle

John J. Nagle, treasurer, secretary and a director of the company since 1927, was elected president of Crown Cork & Seal Co., New York, to succeed Charles E. McManus, chairman of the board, effective Jan. 1. Mr. McManus, retiring president, will continue to take an active part in the affairs of the company.

Nelson Entomology Council Chmn.

Franklin C. Nelson of Stanco, Inc., Bayway, N. J., has been elected chairman of the advisory council for the Thomas J. Headlee Research Fel-

FRANKLIN C. NELSON

lowship in Entomology at Rutgers University, New Brunswick, N. J. Van Wie Ingham, assistant to Dr. W. H. Martin, dean and director of the N. J. College of Agriculture and Experiment Station, was named secretary of the council. A meeting of the council was held at New Brunswick early in December to plan the type of work to be conducted.

Council members, in addition to those already named, include the following: Dr. R. H. Wellman, Carbide and Carbon Chemicals Corp.; J. Edwin Sameth, N. J. Pest Control Association; H. G. Guy, Koppers Co.; Dr. F. B. Maughan, Rohm and Haas Co.; Irwin W. Bales, Chipman Chemical Co.; Dr. Heber C. Donohoe, William Peterman, Inc.; Dr. Ralph Heal, Merck and Co.; R. B. Arnold, Tobacco By-Products and Chemicals Corp.; Kenneth Hankinson, Quality Lime Institute; Dr. E. N. Woodbury, Hercules Powder Co.; Harold G. Olena, Goulard and Olena; Thomas L. Smith, Miller Chemical and Fertilizer Corp.; and Thomas D. Mulhern, N. J. Mosquito Extermination Association.

The fellowship fund, established as a tribute to Dr. Thomas Headlee who retired as head of the department of entomology of the N. J. College of Agriculture two years ago, now has an annual income of $1,500.

This is expected to be increased by additional gifts from individuals and organizations interested in promoting basic work in entomology.

Selling "1080" to PCO's Only

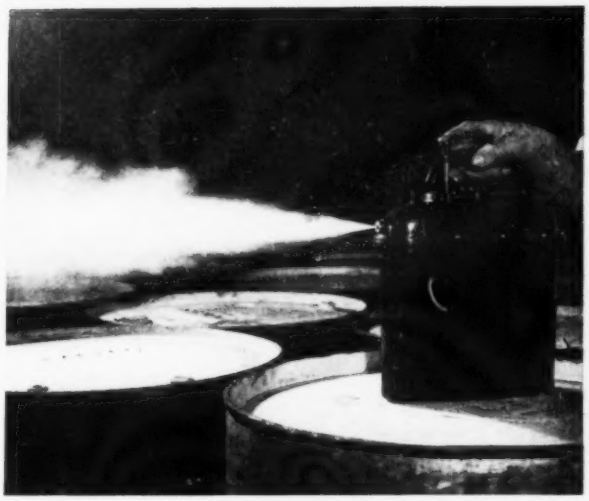
Monsanto Chemical Co., St. Louis, announced Dec. 17 that the rodenticide "1080," of which Monsanto is the only producer, will be sold only to pest control operators. It will not be sold for use in compounding rat poison for household use, and the company does not at any time intend to make the material available to the general public, the announcement stated. The company said that this decision was made in the light of the fact that the new rodenticide is almost entirely without identifying taste or odor and hence is extremely hazardous in the hands of anyone other than an expert. Monsanto manufactures "1080" at its Anniston, Ala., plant. Specific instructions concerning its use and handling are being prepared. Extreme precautions are required in manufacture of the chemical, as well as in shipping. Thus, when the Army wanted 250 pounds of "1080" for use in the Far East the weight of the containers was 1050 lbs.

Change "Vel-Tox" Name

Velsicol Corp., Chicago, manufacturers of insecticide toxicants, DDT solvents and allied materials, have announced that the name, "Vel-Tox," given to a new insecticide toxicant announced in December has been changed to "Velsicol No. 1068" which is available in various concentrations. No. 1068 is the designation for the pure chemical as described in various technical papers. The change in name is due to a conflict in use of the name, "Ves-Tox," owned by the Vestal Chemical Co., St. Louis.

W. A. Partrick Joins Penick

Walter A. Partrick, for many years associated with the export division of Parke, Davis & Co., has joined the export division of S. B. Penick & Co., New York, the company announced Dec. 19. He will have charge of promotional work in the export field for Penick.



Knox Chemical Co., Chicago, is offering to the trade an electric steam sprayer encased in plastic. Volume of spray is regulated by a slight stroke of the thumb controls. The gun will spray a distance of from one to fifteen feet without the need of adjustment or lubrication. It is designed for use with insecticide concentrates of various types.

Publish Richter Work on ANTU

A report on the development and characteristics of the new rodenticide, ANTU, by Dr. Curt P. Richter of Johns Hopkins appears in the December 1 issue of the *Journal of the American Medical Association* under the title "The Development and Use of Alpha-Naphthyl Thiourea (ANTU) as a Rat Poison." Dr. Richter's findings are summarized as follows:

"A new rat poison, alpha-naphthyl thiourea (abbreviated ANTU) has been discovered which compares very favorably with other rodenticides at present available as to cost, toxicity and voluntary acceptance by rats.

"It is a relatively specific poison for Norway rats, being less toxic to all other species tested. Its emetic property protects dogs in most cases. No human fatalities or toxic symptoms in human beings have been observed during three years of extensive use in a city.

"Experience gained from large scale municipal rat control campaigns, using alpha-naphthyl thiourea as the exclusive poison, indicates that observance of the following points is essential to success: 1. Poisoning should not be attempted in any area smaller than a whole city block at a time. 2. The coverage with poisoned bait must be scrupulously complete throughout the block. 3. The cooperation of residents is essential to the permanent control which must follow any intensive campaign. With suitable publicity, materials and cooperation the rat population of a large city can be substantially reduced in a short time should circumstances require it.

"Alpha-naphthyl thiourea kills rats and dogs by its action on the capillaries of the lungs, producing drowning pulmonary edema. No antidote is yet available, but the great insolubility of alpha-naphthyl thiourea makes prompt stomach lavage a useful countermeasure. Should pulmonary edema develop following accidental human poisoning, oxygen should be administered but no fluids should be given either by mouth or intravenously.

"Furthermore, alpha-naphthyl thiourea provides a valuable new tool for research, both in its acute effects involving so specific a site of action and such a rapid increase in lymph flow, and in its chronic effects, which parallel those obtained with thiourea and 2-thiouracil and in addition include disappearance of pigment and cessation of hair growth in black Norway rats."

Hercules Issues Picture Folder

Hercules Powder Co., Wilmington, issued a folding, post-card size mailing piece, just prior to the N.A.I.D.M. convention in New York, Dec. 3-4, that shows various views of the Hercules Entomological laboratory and "Thanite" plant at Brunswick, Ga., as well as an airplane view of the company's headquarters and research laboratories at Wilmington.

Pennsylvania Salt Mfg. Co., Philadelphia, has recently introduced two new consumer packages of DDT insecticides under their trade name "Knox Out." The glass container was said to be scheduled for replacement by metal early in '46.

Georgia Ext. Co., Atlanta

Georgia Exterminating Co. has recently been organized in Atlanta by Capt. R. L. Tindol, Jr., formerly with the Service Command Engineers in charge of insect and rodent control for the Fourth Service Command, U. S. Army.

Grace-Lee Adding to Plant

The Grace-Lee Products Company of Minneapolis are erecting an addition to their plant, which will increase their production by 300 per cent. They expect to have the new plant operating about March 1st.

Speaks on Insecticides

Dr. Gustav Egloff, director of research for Universal Oil Products Co., Chicago, spoke on insecticides and their important function in insect control at a recent meeting of the American Petroleum Institute in Chicago.

Chicago Citizens Elect Carr

George R. Carr, chairman of the Board of Directors of Dearborn Chemical Co., Chicago, was elected president of the Citizens Association of Chicago, at the 71st annual meeting of this organization.

Dorman California Spray V. P.

Russell Dorman, manager of the eastern division of California spray-Chemical Corp., Richmond, Calif., has been elected a vice-president, the company announced recently. He will continue in charge of the company's activities in the eastern half of the U. S. with headquarters, as in the past, at Elizabeth, N. J.

New Construction Plans

Plans for new plants have been announced by two sanitary supply concerns, Worth Distributors, of Greensboro, N. C., and Hughes Chemical Labs., Fort Worth, Texas.

$100,000 for Rat Control in Chi.

The Chicago City Council has received from the city's commissioner of streets a request for an appropriation of $100,000 to be used for rat extermination work during 1946.

William O. Buettner was guest of honor at a testimonial dinner held at the Hotel New Yorker, the evening of December 3. Herbert Meyer of Fumex Sanitation Co., Jamaica, N. Y., acted as chairman of the dinner committee and toastmaster for the dinner. Following a series of talks recognizing Mr. Buettner's contribution to the welfare of the pest control industry by his work as industry representative in Washington over the past two years, in the Office of Civilian Requirements, the group presented him with an order for a new automobile.

(FRONT, L. to R.) J. J. Hess, Exterminating Services Corp., New York, and Herbert Meyer, Chairman Dinner Committee, Fumex Sanitation Co., Jamaica, N. Y.

(SECOND ROW, L. to R.) Dr. E. D. Bocker, N. Y. Department of Health; Ernest M. Mills, Fish and Wildlife Service, U. S. Department of Interior; Theodore Oser, President, National Pest Control Association; William O. Buettner; S. A. Rohwer, Bureau Entomology and Plant Quarantine, U. S. Department of Agriculture; Dr. C. L. Williams, U. S. Public Health Service; Henry A. Nelson, President, National Association of Insecticide & Disinfectant Manufacturers; Edward N. Goldey, Bliss Exterminating Co., New York.

(LAST ROW, L. to R.) Dr. H. H. Shepard, N. Y. State College of Agriculture; A. M. W Carter, Canadian Director of Pesticides; Rev. Judson Fiebiger, Ocean Avenue Congregational Church; E. R. Jennings, Guaranteed Sanitation, Inc., New York; Dr. R. C. Roark, Bureau Entomology & Plant Quarantine, U. S. Department of Agriculture; Sidney Wimmer, Majestic Chemical and Exterminating Co., New York.

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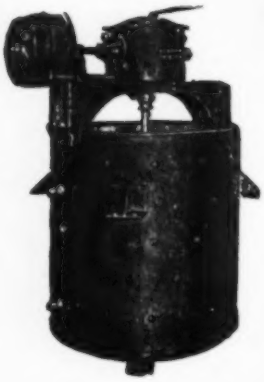

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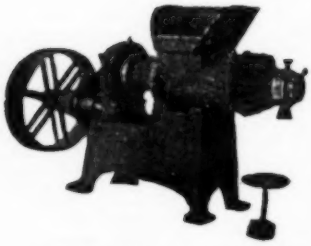

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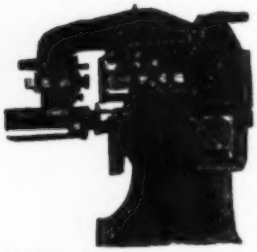
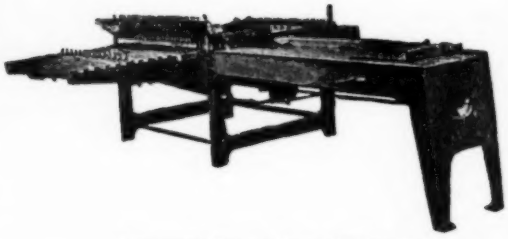


JONES AUTOMATIC combination laundry and toilet soap presses. All complete and in perfect condition.



Automatic Power Soap Cutting Tables.

INVESTIGATE THESE SPECIAL BARGAINS

•

Johnson Automatic Soap Chip Filling, Weighing and Sealing Machines for 2 lb. and 5 lb. Packages guaranteed in perfect condition.

•

ADDITIONAL REBUILT SOAP MACHINERY

All used equipment rebuilt in our own shops and guaranteed first class condition.

H-A, 1500, 3000, 4000, 5000 lbs. capacity. Steam Jacketed Crutchers.
Dopp Steam Jacketed Crutchers, 1000, 1200, 1500 lbs. and 800 gals. capacity.
Ralston Automatic Soap Presses.
Scouring Soap Presses.
Empire State, Dopp & Crosby Foot Presses.
2, 3, 4, 5 and 6 roll Granite Toilet Soap Mills.
H-A 4 and 5 roll Steel Mills.
H-A Automatic and Hand-Power slabbers.
Proctor & Schwartz Bar Soap Dryers.
Blanchard No. 10-A and No. 14 Soap Powder Mills.
J. H. Day Jaw Soap Crusher.
H-A 6, 8 and 10 inch Single Screw Plodders.
Allbright-Nell 10 inch Plodders.
Filling and Weighing Machine for Flakes, Powders, etc.
Steel Soap frames, all sizes.
Steam Jacketed Soap Remelters.
Automatic Soap Wrapping Machines.
Glycerin Evaporators, Pumps.
Sperry Cast Iron Square Filter Presses, 10, 12, 18, 24, 30 and 36 inch.
Perrin 18 inch Filter Press with Jacketed Plates.
Gedge-Gray Mixers, 25 to 6000 lbs. capacity, with and without Sifter Tops.
Day Grinding and Sifting Machinery.
Schultz-O'Neill Mills.
Day Pony Mixers.
Gardiner Sifter and Mixer.
Proctor & Schwartz large roll Soap Chip Dryers complete.
Dopp Steam Jacketed Soap Crutchers, 1000, 1200 and 1350 lbs. capacity.
Day Talcum Powder Mixers.
All types and sizes—Tanks and Kettles.
Ralston and H-A Automatic Cutting Tables.
Soap Dies for Foot and Automatic Presses.
Broughton Soap Powder Mixers.
Williams Crusher and Pulverizer.
National Filling and Weighing Machines.

Send us a list of your surplus equipment— we buy separate units or complete plants.

NEWMAN TALLOW & SOAP MACHINERY COMPANY

1051-59 WEST 35th STREET, CHICAGO 9, ILL. Phone Yards 3665-3666

Our Forty Years Soap Experience Can Help Solve Your Problems

CLASSIFIED

Classified Advertising — All classified advertisements will be charged for at the rate of ten cents per word, $2.00 minimum, except those of individuals seeking employment where the rate is five cents per word, $1.00 minimum. Address all replies to Classified Advertisements with Box Number, care of *Soap & Sanitary Chemicals*, 254 West 31st St., New York 1.

Positions Open

Ph.D. or Equivalent: Experienced in development work on lubricating greases. Large manufacturer, New York City. Address Box No. 296, care of *Soap & Sanitary Chemicals.*

Soap Maker: Metropolitan New York company will pay $4,500 per year to experienced soap maker. In writing give full details regarding age, experience, availability. Address Box 298, care of *Soap & Sanitary Chemicals.*

Insecticide Sales — Young man with some insecticide experience and entomology background to assist in technical sales service and sales promotion. Address Box 299 c/o *Soap & Sanitary Chemicals.*

Grease Technologist: Excellent opportunity for man with ability to appy practical experience to the development of all types of lubricating greases. Sound chemical background required. Metropolitan New York. Address Box No. 297, care of *Soap & Sanitary Chemicals.*

Wanted: Sales Representatives now calling on janitors' supply houses in all sections of the country, to sell a new type waterless, mechanics hand-cleaner. This is a large volume item. Some jobbers report as high as 17 turnovers in nine months. Give list of territory you cover and types of jobbers you call on. High brokerage arrangement. Write at once, Gus J. Schaffner Co., Avalon, Pittsburgh 2, Pa.

Wanted: Young man with successful experience distribution and merchandising in soap field, to take charge of new popular priced product to be introduced in greater New York market. Backer is not in soap business but an advertising man of high repute ready to support product with aggressive advertising campaign, to be extended into each new market, as opened. Give all particulars of background and experience. Replies held in strict confidence. Address Box 307, care of *Soap & Sanitary Chemicals.*

Salesman: Experienced salesman wanted for complete line of spray, dried powdered soaps and soap powders. Must be qualified to handle reasonable volume of sales. Address replies to Box No. 309, c/o *Soap & Sanitary Chemicals.*

Senior Casting Engineer — organic section chemical laboratories nationally merchandising organization. Graduate chemist 5 to 10 years experience organic chemical field. Preferably plant and laboratory experience in oils, fats and waxes, and items of merchandise made therefrom. Additional experience in adhesives, dye and dyestuffs and chemical microscopy. Permanent position. Replies confidential. Address replies to Box 308, care of *Soap & Sanitary Chemicals.*

Cosmetic Man Wanted: A lifetime opportunity is offered to the man with the proper background, experience and initiative to join forces with a young man recently discharged from the Armed Service, in the starting of a new cosmetics company. The man who is making this opportunity possible has an excellent financial background, is alert, aggressive and anxious to team up with someone who knows the cosmetic field thoroughly. The important requisites are a full knowledge of the industry, including production, packaging and marketing. Familiarity with the buyers and merchandisers of major stores throughout the country is desirable. The opportunity offered can lead to whatever goal may be in your mind. The investment of money will not be necessary. Write in fullest confidence to: The Maurice Lionel Hirsch Company, Advertising Agency, 316 North Eighth St., St. Louis 1, Missouri.

Manufacturers Representative: We need a man with experience and contacts in the insecticide field to handle the sale of aerosol insecticides in the eastern market. We are one of the large aerosol producers and this is an excellent opportunity for the right man. Please send information regarding your experience and territory you can cover. Address Box No. 315, care of *Soap & Sanitary Chemicals.*

Production Chemist to make complete line of household products, self-polishing waxes, furniture polishes, cleansers, etc. with plant located in Birmingham, Alabama, having national distribution. Prefer married man not over 40. This is a splendid opportunity with young,

Positions Open

growing concern for a man to take full charge and grow with company. Please give full particulars as to background, salary, availability, in first letter. Confidential. Address Box 317, care of *Soap & Sanitary Chemicals.*

Salesman Wanted for prominent line of liquid soap dispensers for the jobbing trade. Give full details in your first letter. Address Box No. 305, care of *Soap and Sanitary Chemicals.*

Positions Wanted

Chemical Engineer: Capable of organizing and carrying out research and production of soaps and detergents. Fifteen years of experience in the Research Development and production management in soap, oils, fats, and detergents. Thorough knowledge of hydrogenation of organic compounds, including catalyst manufacture; considerable experience in bleaching and splitting of fats and oils, and continuous saponification of fatty acids; eight years of research and operation of drying processes—consisting of spray tower and drum drying of soap and synthetic detergents. Salary $7200. Address Box No. 295, care of *Soap & Sanitary Chemicals.*

Entomologist—Man with wide experience in both agricultural and household insecticide technical sales and manufacture desires connection in insecticide sales where entomological experience is of value. Ph.D. Address Box No. 300, care of *Soap & Sanitary Chemicals.*

Sales Representative — Am reestablishing sales office in St. Louis upon return from military service. Open to represent one or two additional manufacturers in central and southwest selling to drug, cosmetic, insecticide, soap, chemical specialty, janitor supply firms. Close trade connections. Communicate with Box No. 302, care of *Soap & Sanitary Chemicals.*

Sales Representation: Man well acquainted in Chicago wants to represent reputable, aggressive manufacturers or importers. Will accept three non-conflicting lines only. Excellent coverage of Chicago area assured. Inquiries confidential. Address Box 304, care of *Soap & Sanitary Chemicals.*

Position Wanted by veteran having over 13 years experience with firm manufacturing soaps, disinfectants and specialties and packaging and jobbing chemicals and oils, etc. Firm was sold during my absence and one of new owners assumed my former position of office manager and purchasing agent. Have experience in government bidding, sales correspondence, shipping and traffic, production control, F & D A regulations. Have technical background of 7 years night school in chemistry and chemical engineering. Honorable discharge from U. S. Army after 26 months service. Age 32, married. References. Address replies to Box 310, c/o *Soap & Sanitary Chemicals.*

Positions Wanted

Soapmaker, chemist, European, 45, speaks five languages, long experience in soaps, candles, glycerine, fatty acids. At present superintendent of important South American plant. Will shortly immigrate to U.S.A. Accepts any kind of job anywhere in U.S.A. Reply to: Caixa Postal 3225, Rio de Janeiro, Brazil.

Position Wanted: Veteran, 26, employed in drug, cosmetic and essential oil industry, with purchasing duties, desirous of position in same field, with opportunity for advancement. Address replies to Box 312, care of *Soap & Sanitary Chemicals.*

Superintendent Soap Maker with long experience on all kinds of soaps and soap products. Glycerine recovery, also experienced chemist. Good references. Pacific Coast preferred. Address Box 313, care of *Soap & Sanitary Chemicals.*

Chemist-Zoologist, B.A., M.S. 5 years experience: 2 years development, research in recent insecticides, including biological testing; 3 years in petroleum. Administrative and technical contact experience. Desires responsible position with future. Married, 28. Address Box No. 314, care of *Soap & Sanitary Chemicals.*

Technical Director: 18 years experience in development and production of protective and decorative coatings which include pigment dispersions, resin emulsions, wax finishes and ethyl cellulose lacquer emulsions. Desires position with progressive firm. Chicago area preferred. $8,000 minimum. Address replies to Box 316, care of *Soap & Sanitary Chemicals.*

Free Advts. for Veterans

Miscellaneous

Wanted: Manufacturing Concern would like to add to their line by purchasing going business manufacturing synthetic detergents, metallic — soft soaps, disinfectants, or similar. Address Clifton Chemical Co. 62 William St., New York 5, N. Y.

Floor Brushes: We manufacture a very complete line. Catalogue sent upon request. Flour City Brush Company, Minneapolis, Minn., or Pacific Coast Brush Company, Los Angeles, Cal.

Wanted New Chemical Products: Intermediate or compounds selling to industrial and commercial markets. Our client established 30 years, manufactures to standards of highest quality. Please write, communications confidential. We are fully compensated by our client. Charles H. Welling & Co., Inc., 52 Vanderbilt Avenue, New York 17, N. Y.

Opportunity: We are interested in contacting manufacturers of janitor supplies and building maintenance line. Will travel several men in the near future. Send us your catalog with jobbers prices. Berry Soap Co., 931 West Main St., Louisville 2, Ky.

For Sale: Lehman 22″ x 48″ 5 roll steel mill, water cooled; Jones type "A" automatic toilet and laundry soap press, with conveyors; Jones type "E" automatic toilet soap press, with conveyors; Houchin 1200 lb. power driven steel soap slabber; Houchin power driven two way steel cutting table; 5-Shriver, Sperry 12″, 18″, 24″, 30″ iron filter presses; Stokes and Smith Model G-I powder filler. Abbe Lenart jacketed mixer, 390 Gal.: Send for latest bulletin. Brill Equipment Company, 225 W. 34th Street, New York 1, New York.

For Sale — 35,000 lbs. Sharples Crude Triethylamine. Address Buying Dept., Procter & Gamble, Cincinnati 1, Ohio.

Filling Machinery Wanted for immediate delivery — Need four (4) fully automatic filling lines for sealed cardboard cartons to handle free-flowing powder. Fully automatic top and bottom sealers necessary. Size ranges: thickness: ¾″ to1¾″ width; 2¾″ to 6½″; Height, 3¾″ to 8½″ Hood Chemical Co., Inc., 1819 Broadway, New York, 23, N. Y., Phone—CO 5-0116.

Miscellaneous

Will Purchase Immediately — Pneumatic Packaging Machine, used for chips, powder, cleanser; also dry mixers, chip dryers, crutchers, and automatic soap press. Address Box No. 311, care *Soap & Sanitary Chemicals.*

For Sale—Genuine Pyrethrum fly spray "AA" grade. 70c gallon for 2,000 cases, 6 x 1 gallon cans each. Smaller quantities 80c gallon. FOB Springfield, Illinois. Wire or phone. Chemical Service Company, 84 Beaver Street, New York 5, New York. Hanover 2-6970.

Representation: Progressive Sanitary Chemical Co. in the Hawaiian Islands wishes to represent reliable manufacturers of insecticides, janitor supplies, disinfectants, soaps, aerosol dispensers, chemicals and allied products. Address Box 301, c/o *Soap & Sanitary Chemicals.*

Soap Frames for Sale: Ten used soap frames in excellent condition. Especially built with extra clamps, steel linings, etc. Sturdy and strong. Located in middle-west. For price and other details communicate with Box 303 c/o *Soap & Sanitary Chemicals.*

Opportunity: Party with ample capital is interested in purchasing medium sized soap, sanitary supply or insecticide business. Give Full Details. Address Box 306 c/o *Soap & Sanitary Chemicals.*

Wanted: 60,000 lbs. Tri-Sodium Phosphate for immediate delivery. Address replies to Box No. 318, c/o *Soap & Sanitary Chemicals.*

For Sale: Houchin "Empire State" Foot Press. Two Way Soap Cutting Table. Slabber. Soap Frames. Three Roll Water Cooled Mill 16" x 40". Stone Mills; Dryers; Mixers; Grinders; Filter Presses; Kettles & Tanks; Pumps; Ball Bearing Conveyor, etc. Send for our latest Bulletin. We buy your surplus equipment for cash. Stein Equipment Co., 426 Broome Street, New York 13, N. Y.

Will Buy outright or interest in extra small plant making cosmetics, barber and beauty shop or household preparation, with established item. Worley, 834—33 Street, South Bend 15, Indiana.

Opportunity: One of our clients manufacturers 2, 4-dichlorophenoxyacetic acid (2-4-D) in bulk offers this weed killer in powder, dust or liquid form to household packagers and agricultural insecticide manufacturers for repackaging. This manufacturer offers 2-4-D in quantity and quality backed by years of practical experience in weed control. A technical staff is available, composed of both research and field men, to supply the necessary information needed for a successful weed control program. Our client's weed killer has been thoroughly tested by government and state agricultural experiment stations. For full information, write today to: J. Hayden Twiss, 205 East 42d Street, New York 17, New York.

Sales Representative: For prominent line of laundry bar soap, soap powder, washing powder in packages to sell to the wholesale grocery chain stores and janitorial supply trade. Plant located in Ohio. Have tremendous productive capacity. Wide area now open. Address Box 319 c/o *Soap & Sanitary Chemicals.*

West Issues Debentures

West Disinfecting Co., Long Island City, will issue $1,500,000 of sinking fund debentures due Jan. 1, 1961, according to a registration statement filed with the SEC. Coffin & Burr, Inc., Philadelphia, are the principal underwriters. Proceeds will be used to pay off a $49,000 mortgage on the company property, to pay off bank loans of $800,000, and for general funds. The company recently completed building a new shipping and receiving warehouse with rail sidings adjacent to its main factory in Long Island City.

Discuss Carnauba Replacement

Replacement of carnauba wax by an I. G. Farbenindustrie patented synthetic was discussed by a Prepared Waxes and Polishes Industry Advisory Committee meeting, held in Washington, Dec. 27. The synthetic carnauba can be produced here or in Germany to sell for around 40 to 50 cents a pound, a Civilian Production Administration spokesman stated. The plants, which are intact, and the raw materials required for the production of the carnauba substitute are available in Germany, the committee reported. Although there are labor, fuel and transportation shortages in Germany, it was thought by the committee that with the cooperation of the Allied Military Government authorities there, the obstacles might be overcome and the carnauba replacement put into production. The I. G. substitute is said to be similar to carnauba in many respects, and in some, superior to it. It is noted for its uniformity, the report stated. Wells Martin, chief of the plastics and protective coatings branch of the Civilian Production Administration, acted as Government presiding officer at the Washington meeting. Representatives of seven firms attended.

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S-W Offers Pestroy

Sherwin-Williams Co., Cleveland, has brought out a new DDT concentrated insecticide, "Pestroy," for general industrial and farm uses. The product is stated to be a 25 per cent DDT concentrate designed to be diluted with water for spraying or painting on surfaces to destroy flies, fleas, roaches, and other common insects.

Sales Manager Wanted

Sales Manager Wanted: Manufacturer of nationally advertised skin cleansers for plant workers and other cleaning specialties, selling nationally direct to industrial plants and also through jobbers to the automotive field, is looking for a capable, experienced man to supervise sales. He will headquarter in St. Louis, Missouri. Present sales force numbers about 30. We visualize a man with college training and on the under size of 40. He will have complete charge of the Sales Department reporting direct to the president and he will not be handicapped by preconceived company ideas as to how he should operate. Salary will be five figures with bonus incentive plan. To receive consideration be sure and write fully giving complete chronological history and remuneration received. Send a snapshot of yourself. Address Box No. 320, care of *Soap & Sanitary Chemicals.*

Letter To The Editor

Dear Sir:

Publicly whipping the USPHS, the USDA and other agencies may be fun but Soap will be doing the insecticide industry a great disservice if it fails to place the blame for the drop in consumer interest in DDT where it largely belongs—squarely on the shoulders of irresponsible insecticide manufacturers and salesmen. Having been thoroughly bilked, it is not to be wondered at that the public has become distrustful of the material for which it paid fantastic prices and from which it got exceedingly poor results when the directions on the label were followed.

The USPHS release about a teacup and soap and kerosene was admittedly silly but it is not untrue that the householder could make a completely satisfactory DDT spray from easily available raw materials at a cost of less than one-tenth the average price now charged. When a material costing (including a bottle) about 50c a gallon is sold for $3.50 to $4.00, word is bound to get around. It was beginning to get around about pyrethrum materials.

Similarly manufacturers have no one but themselves to blame if they told customers to use DDT as a space spray or to "spray toward walls" or other mis-leading statements and the customer then became disenchanted with the product. (Vide: the public suspicion of PDB, a thoroughly useful material when properly used.) Materials bearing no statement of percentage of DDT were sold here and proved to contain less than 3 per cent. They were used with entire lack of success by large numbers of people no small portion of whom phoned this Headquarters to blame "The Army," for having "recommended" DDT. The inclusion of 5 per cent, the provision of good, intelligible and completely informative labels would have increased the manufacturers cost by almost no appreciable amount. More than one manufacturer prudently used fully informative labels but the public reaction blasted all alike, at least until further publicity by the USPHS and others reassured the householder that DDT *if properly used* was still a good product.

The solution would seem to these unsophisticated eyes to be simple. Except for excessively cautious states like Pennsylvania, virtually all packaging and labelling troubles would be obviated by honest and informative statements. The contents of the material, as: DDT 5 per cent, thiocyanates to increase knockdown 2.5 per cent, active solvent 92.5 per cent, is simply stated. Directions for use are not complicated. Warnings of as yet not sufficiently determined toxicity are easily phrased as are warnings not to use hydrocarbons on animals or plants or to risk hydrocarbon burn which may be misinterpreted as DDT poisoning. Attempting to pussyfoot can only produce a corresponding public distrustfulness. Honest mixing, labelling and pricing will, I believe, produce a public more than willing to pay an honest profit to honest manufacturers and to come back for more.

Very truly yours,
Austin W. Morrill, Jr.
Entomologist
Deputy Engineer Office
Hq., 4th Service Command
Atlanta, 3, Ga.

Keeling Joins Koppers

Koppers Co., Pittsburgh, recently announced the appointment of Thomas C. Keeling as general sales manager for the Tar and Chemical Division. Mr. Keeling is just completing four years as a lieutenant colonel in the U. S. Army, where he was chief of the chemical section, Production Division of the War Department. A native of Baton Rouge, La., he was graduated in 1935 from Massachusetts Institute of Technology with a degree in business and chemical engineering administration. From then until the time he entered the Army he was a sales engineer for Niagara Alkali Co., Buffalo.

Riedeburg Joins Westvaco

Theodore Riedeburg, formerly of Dow Chemical Co., recently joined Westvaco Chlorine Products Corp., New York, as technical sales representative in charge of the company's line of insecticides and fumigants, including DDT, methyl bromide and grain and soil fumigant mixtures. A graduate of Marquette University in botany and chemistry, Mr. Riedeburg worked for three years with Dow developing methyl bromide and other fumigants for use in industrial and food-plant sanitation.

Johnson Plans Unusual Lab

S. C. Johnson & Son, Inc., Racine, Wis., shortly is to begin construction of a 14-story laboratory tower of unusual design, it was announced by the company recently. The tower, which is 40 feet square and 156 feet in height, will be surrounded by two and three-story buildings in which will be housed the technical service department, pilot plant, advertising and photographic offices and demonstration and lecture rooms. A circular masonry stem in the tower will connect with the floors at the center of each level. Built of brick, glass and reinforced concrete, the new laboratory will be heated and air conditioned through a central shaft. The cost of construction will run around $750,000.

PCO Conferences Scheduled

A tentative listing of general subjects which will be covered at the tenth annual Pest Control Operators' Conference, to be held Jan. 28-Feb. 1, at Purdue University, Lafayette, Ind., was issued late last month. The conference is sponsored by Purdue University and the National Pest Control Association. Highlights of the program will be discussions on new insecticides, new rodenticides, including "1080" and "Antu," and odor absorbents and adsorbents.

Other PCO conferences include the sixth annual Eastern conference which is scheduled to be held Feb. 4-6, at Massachusetts State College, Amherst, the sixth annual Southern conference, which will be held Feb. 14-16, at Louisiana State University, Baton Rouge, La., and the fourth annual Canadian conference, to be held Feb. 17-21, at the University of Montreal.

A.C.C.L. Elects Sherman

Herbert L. Sherman, of Skinner & Sherman, Inc., Boston, was elected president of the American Council of Commercial Laboratories at the group's eighth annual meeting at the Palmer House, Chicago, Dec. 10-11. Other officers elected were: vice-president, F. B. Porter, Southwestern Labs., Fort Worth; secretary, Bernard L. Oser, Food Research Labs., Long Island City, N. Y.; treasurer, Gustavus J. Esselen, Gustavus J. Esselen, Inc., Boston, and the following directors: R. R. Bowser, Bowser-Morner Testing Labs., Dayton; I. F. Laucks, Laucks Labs., Seattle and M. C. Wylie, Gulick-Henderson Co., Pittsburgh. Maj. W. P. Putnam, of Detroit Testing Labs., Detroit, retired as president of the Council but remains as ex-officio director.

Hudson to Produce Duster

Acquisition by H. D. Hudson Manufacturing Co., Chicago, of all production facilities for the manufacture of the "Stauffer Knapsack Duster," developed and tested by Nico-Dust Mfg. Division of Stauffer Chemical Co., San Francisco, was announced by the company recently. The latter organization will continue its established distribution activities.

INDEX TO ADVERTISERS

* For further details see announcement in 1945 SOAP BLUE BOOK

Every effort is made to keep this index free of errors, but no responsibility is assumed for any omissions.

Tale Ends

RALPH HENDERSHOT, financial editor of the *New York World-Telegram*, says that the dizzy days of 1929 are about to play a return engagement. So when the bubble bursts, remember we warned you!

* * *

Geigy's DDT patent now a best seller, says Patent Office. Four hundred copies of a reissue sold out before noon of the day they were printed. And the Patent Office is now busy again printing up another new supply. Get your order in early next time!

* * *

You can't fool us, Dr. McGovran! Take off them dark glasses! In last month's issue on page 165 appears the name as author of an article one "E. R. McGowan" along with W. A. Gersdorff, both of the Bureau of Ent and PQ. It did not take the detective who runs this column long to smell this one out. "McGowan" is none other than Dr. E. R. McGovran, well known both in and out of B of E & PQ. No, he was not hiding behind a *nom de plume*. It was just an old-fashioned Grade AAA editorial boner. The ed has already apologized privately to Doc McGovran and has asked us to do so publicly. Doc, we apologize!

* * *

Snow scene photo on the front cover is by John Loughlin, steward at the Chemists' Club, New York, whose fame as a photographer is legion. Also as the ace collector for the National War Fund in N. Y., collecting over $6,000 single handed, he was recently awarded a scroll by Rt. Rev. Mgr. William A. Courtney, rector of St. Steven's R. C. Church in N. Y.

* * *

If you have not seen the new John Powell & Co. offices at one Park Ave., N. Y., don't miss it. What a gorgeous glassed-in jernt! And just to sell pyrethrum and DDT.

* * *

About face in used drums,—last month a drug on the market,—this month tight as a fiddle string! Reason? Anticipated steel strike.